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ABSTRACT

The Professional Nurse Traineeship (PNT) program was created to provide nursing schools that place high proportions of their graduates in medically underserved communities with additional funding to support students in graduate nursing education or training. A total of 4,332 nurses who graduated in the academic years of 1996-1997 or 1997-1998 from schools receiving PNT funds were surveyed regarding their graduate training experiences, employment after graduation, and education before entering graduate school. Univariate and bivariate analyses of the 3,219 responses (response rate, 74.5%) established that, although the PNT program is meeting its performance goal of placing 40% of its graduate recipients in medically underserved communities, schools with funding preference actually had lower rates of graduates employed in medically underserved communities than did schools without the preference. Some school practices found in schools with and without funding preferences (such as requiring nurses to take courses on providing health care services in rural or medically underserved communities and requiring nurses to sign a commitment to practice in medically underserved communities) and some demographic factors (such as non-White race and Hispanic ethnicity) were associated with higher rates of employment in medically underserved communities. The survey and weighting methodology as well as the selected results by year of graduation are appended. (Contains 23 tables and 5 references.) (MN)

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Professional Nurse Traineeship Grants:
Who Gets Them and Where Do They Work After Graduation?

Final Report

July 31, 2001

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I. INTRODUCTION

Many Americans do not have access to a primary health care provider. To help address these access problems the Health Resources and Services Administration (HRSA) has designated geographic and practice sites as medically underserved areas and health professional shortage areas (together known as medically underserved communities). HRSA gives priority funding to programs that support professionals who are likely to practice in these areas. Graduate nurses, including such advanced practice nurses as nurse practitioners, nurse anesthetists, and nurse midwives, play a vital role in serving the needs of vulnerable populations in isolated rural and disadvantaged urban areas that qualify as medically underserved communities. The Professional Nurse Traineeship (PNT) Program is one of the HRSA programs intended to alleviate access problems in medically underserved communities. Nursing schools may apply for PNT funds to support the education of nurses in graduate programs of study. Schools that place a high proportion of their graduates in medically underserved communities can apply for PNT funding preference and thus receive more PNT funds (the Statutory General Funding Preference [SGFP]).[1] The Government Performance and Results Act of 1993 (GPRA) requires government agencies to set objective performance standards. In compliance with this act,

HRSA set a goal for the PNT Program of placing 40 percent of its graduate recipients in medically underserved communities.

This report describes the findings from the first study of the PNT Program. The study focuses on whether the PNT Program met the GPRA goal of placement of 40 percent of graduates in medically underserved communities. It also focuses on whether the schools given SGFP place more of their graduates in medically underserved communities than do those without the preference. HRSA contracted with Mathematica Policy Research Inc. (MPR) to assess whether its objectives were being met.[2] The study included a survey of nurses who received PNT support for graduate nursing education or training and who graduated in 1997 or 1998. In addition to assessing whether the GPRA standard is being met and the effects of the funding preference, the study describes the recipients of PNT support. It also documents whether schools have established special approaches to achieving the placement goals (such as recruiting students from among those who have lived or worked in medically underserved communities) and whether these appear to be effective.

The schools distribute the PNT funds to their nurse graduate students. The funds can be used for a variety of purposes: books, fees, tuition or a stipend. The nurses have to sign a statement of appointment form showing that they have received PNT funds and for what purpose. The nurses in the study reported that they received an average of $1,843 in the last school year in which they received PNT funds.

A. DATA

The universe for the survey was 5,184 nurses who graduated during the two academic years 1996 to 1997 and 1997 to 1998 from schools receiving PNT funds. The survey asked the nurses questions about their graduate training and experiences, employment after graduation, and education before entering graduate school and asked for demographic information. It was conducted by mail with telephone follow up. Of the 5,184 nurses in the survey universe, 553 were ineligible for the survey.[3] The response rate to the survey was 74.5 percent (3,219 of the 4,332 eligible nurses). All findings from the survey are weighted for nonresponse. The survey and the weighting method are described in Appendix A.

B. METHODS

The study uses univariate and bivariate analysis to describe the characteristics of nurse graduates and compare nurse graduates from SGFP and non-SGFP schools. We report weighted frequency distributions of characteristics of nurse graduates, such as age, numbers of children, and the year he or she became a registered nurse. To determine statistically significant associations, we use *t*-tests and chi-squared tests. Because we have a hypothesis that the schools with funding preference will have higher rates of placement of nurses in medically underserved communities than schools without the preference, we use one-tailed tests of significance for this association. Elsewhere we use 2-tailed tests.

To identify correlates of current employment in a medically underserved community, we constructed a series of weighted two-by-two tables of nurse graduates' current employment site with each binary variable in the analysis. We used chi-squared tests of homogeneity to determine whether there was a statistical association between the proportion currently employed in a medically underserved community and the level of the binary variable. For categorical variables, we estimated a series of weighted logistic regressions. The specification for these regressions included a series of binary variables representing each level of the categorical variable of interest. We used a Wald chi-squared test to determine whether the entire set of binary variables that define the categorical measure significantly explains variation in the likelihood of current employment in a medically underserved community. In addition, we used t-tests to compare the estimated coefficients of these binary variables. This enabled us, for example, to determine whether any particular category stood out as a particularly strong correlate of current employment in a medically underserved community.

We cannot say *why* the associations that we find have occurred. For example, if we had found that SGFP schools had higher rates of nurses working in medically underserved communities, we would not have been able to say that the extra funding caused the higher rate of placements (it could have been because of some other characteristics of SGFP schools or their students).

We analyzed the data for the two school years together and separately. In the following chapters, we report the pooled data. A table of sociodemographic characteristics by school year is given in Appendix B. We determined that there was little difference between the two school years and that they could therefore be pooled.

To complete this analysis we had to operationalize several key concepts:

- PNT support
- Schools with SGFP
- Medically underserved community

1. Professional Nurse Traineeship Support

Only graduates from schools receiving PNT support were included in the study. HRSA provided a list of schools receiving PNT support and a list of graduates from those schools. Schools were not included in the study if they did not provide HRSA with the names of their graduating nurses who received PNT support. In the 1996 to 1997 school year, 254 schools received PNT support; 249 were included in our study. In the 1997 to 1998 school year, 267 schools received PNT support; 260 were included in our study see Table I.1. Nurses who reported that they did not receive PNT support (even though their school had reported that they did), are ineligible, and are not included in the analysis.

TABLE I.1

DISTRIBUTION OF SCHOOLS AND RESPONDENTS, BY PNT STATUS, SGFP STATUS, AND YEAR

School Year	Number of PNT Schools (Number in the Study)	Number of SGFP Schools (Number in the Study)	Number of Eligible SGFP Respondents	Number of Eligible Non-SGFP Respondents
1996-1997	254 (249)	200 (196)	1429	175
1997-1998	267 (260)	191 (188)	1487	128
Total		–	**2,916**	**303**

2. Schools with Statutory General Funding Preference

HRSA provided a list of schools receiving funding preference (that is, receiving additional PNT funds). Each graduate was coded according to whether his or her school received the funding preference. Of the 3,219 eligible respondents, 2,916 graduated from SGFP schools and 303 graduated from non-SGFP schools. In the 1996 to 1997 school year, 200 schools received preference; 196 are included in the study. In the 1997 to 1998 school year, 191 schools received funding preference; 188 are included in the study (see Table I.1). Thus, most schools receiving the funds also were receiving the funding preference.

3. Medically Underserved Communities

We wished to define residence in a medically underserved community and employment in a medically underserved community. We defined each of these concepts differently. All survey respondents were given a definition of a medically underserved community (see Table I.2).

First, we defined whether the nurse lived in a medically underserved community while growing up, as an adult, and during graduate nurse training. We relied on the nurses to self- define the place they lived as a medically underserved community, based on the definition they had been given.

TABLE I.2
DEFINITION OF A MEDICALLY UNDERSERVED COMMUNITY IN THE SURVEY

A medically underserved community is one that is served by one of the following sites:

- Ambulatory practice site designated by the governor as serving a medically underserved community
- Community Health Center
- Federally Designated Rural Health Clinic
- Federally Qualified Health Center
- Health Care for the Homeless
- Indian Health Service site
- Migrant Health Center
- National Health Service Corps freestanding site
- Public housing primary care grantee
- State or local health department

Or a medically underserved community is an area designated as:

- A Primary care Health professional shortage area (HPSA)
- A Nurse shortage area

Note: Question A12 in the survey. In the mail version, the respondent read the definition. Telephone survey respondents had the definition read to them.

Second, we defined the nurses' postgraduation employment sites. We constructed two measures of employment in medically underserved communities. The first measure drew on the employment site where they had spent the most hours since graduating. The second measure drew on current employment sites (at the time of the survey) at which the nurse was working at least 8 hours per week. First, if a nurse reported that he or she worked in one of the practice sites listed in Table I.2, we determined that he or she was employed in a medically underserved community. Second, we also asked nurses for the ZIP codes of their places of current employment (up to two sites) and the place of employment where they had worked the most hours since graduation. If a ZIP code was in the boundaries of a county that HRSA considered to be a primary care health professional shortage area (HPSA) or medically underserved area (MUA), we also coded the nurse as employed in a medically underserved community.[4]

Most nurse graduates who we found to be currently employed in a medically underserved community were assigned to this status based on their site of practice (that is, working in a community health center or other location deemed to be serving a medically underserved community). A few were assigned to this status based on their ZIP code. The remaining nurses were not working in a medically underserved community or else their status could not be determined because we lacked their ZIP code:

- 34.6 percent of nurse graduates were currently employed in a practice site deemed to be a medically underserved community
- An additional 3.2 percent of nurse graduates were currently employed in another practice site that was located in a whole county HPSA or MUA
- 39.7 percent of nurse graduates were currently employed in a practice site located in a ZIP code that is not in a whole county HPSA or MUA
- 18.2 percent of nurse graduates were not currently employed at least 8 hours per week
- 4.4 percent of nurse graduates were currently employed as a nurse at least 8 hours a week, but did not provide a usable ZIP code

C. STUDY QUESTIONS

In addition to the key questions about employment in medically underserved communities (whether the PNT program meets the GPRA performance goal and whether the schools with the funding preference place more graduates in medically underserved communities), we examined a number of related questions. Table I.3 lists the study questions and indicates the chapter which we discuss them in.

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TABLE I.3 ANALYTIC QUESTIONS

Chapter II: The Characteristics and Prior Experience of Nurse Graduates code:

- What are the demographic characteristics of PNT graduates in 1997 and 1998?
- How many years of experience as registered nurses do 1997 and 1998 PNT-sponsored graduates have?
- Do graduates of SGFP schools differ from graduates of non-SGFP schools?
- Are the SGFP schools more likely to attract students who have lived in medically underserved communities?
- What were the type and geographic location of the work setting of these graduates before their program of study?

Chapter III: Nurse Graduate Educational and Training Experiences

- What type of graduate nursing education did the PNT-supported graduates have?
- What kinds of encouragement, special courses, and placement assistance did graduates receive as incentives to work in medically underserved communities? Are SGFP schools more likely to provide these kinds of encouragement?

Chapter IV: The Employment Sites of Nurse Graduates

- What percentages of 1997 and 1998 nursing graduates receiving PNT support are employed in medically underserved communities after graduation?
- Are nursing graduates who received the PNT support through schools that received the SGFP more likely to be employed in medically underserved communities than PNT graduates from non-SGFP schools?
- Are graduates who come from medically underserved communities more likely than other graduates to be employed in these communities after graduation?
- Is there a relationship between the graduate's nursing specialty and the location and type of their current employment setting?
- What factors influenced the PNT recipients' choice of work setting? Do these factors differ between graduates from schools that receive the SGFP and those that do not?
- Are the demographic characteristics of PNT graduates related to their employment sites after graduation?

Chapters II through IV describe our findings from the study. Chapter II describes the characteristics of the nurses receiving PNT funds. Chapter III describes their educational and training experiences. Chapter IV discusses the nurses' employment in medically underserved communities. Chapter V assesses the effectiveness of the PNT program and the SGFP and makes recommendations for program changes that might improve the placement rates in medically underserved communities. Appendix A describes the survey. (A separately bound appendix includes survey instruments and background materials.) Appendix B contains supplemental tables.

D. KEY FINDINGS

The study found that the PNT program is meeting the GPRA performance standard, but that the schools with funding preference did not have more graduates employed in medically underserved communities than schools without the preference (they had less). However, some school practices (found in both funding preference and nonpreference schools), such as requiring nurses to sign a commitment to practice in medically underserved communities, and some demographic factors, such as nonwhite race and Hispanic ethnicity, are associated with higher rates of employment in medically underserved communities.

[1] The average PNT grant to nursing schools in fiscal 1997 was approximately $59,000. Schools with the funding preference received an additional $8,800.

[2] Contract number HRSA 240-94-0035 (0005).

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[3] This included 114 who did not received PNT funds, 434 who did not graduate during the two academic years, and 5 who were deceased.
[4] We drew the county definitions (HPSA or MUA) from a file provided by Dr. Thomas Ricketts of the Sheps Center for Health Services Research at the University of North Carolina. Dr. Ricketts' group had prepared this file for HRSA under another contract. We only considered the nurse employed in a medically underserved area if the HPSA or MUA was a whole county HPSA or MUA. ZIP codes that crossed county boundaries were assigned only to the county where the majority of the population resided.

II. CHARACTERISTICS AND PREVIOUS EXPERIENCE OF NURSE GRADUATES

Understanding the background of nurse graduates and the context in which they entered the programs for which they received PNT-support is the first step in understanding why some nurses choose to work in medically underserved communities. In this chapter, we use data from the Survey of Nurse Graduates to describe the demographic, educational, and employment characteristics of PNT-supported graduate nurses. Nurses with backgrounds in medically underserved communities theoretically may be more willing than nurses without such backgrounds to serve populations living in those areas. Thus, recruiting students who were employed or who lived in a medically underserved community is thought to be one way institutions can influence graduate placements in medically underserved communities.
Schools that take special actions to recruit nurses and promote placement in medically underserved communities may be eligible for the SGFP. In this chapter, we also use the survey data to assess whether SGFP institutions are, in fact, differentially recruiting students with prior attachments to medically underserved communities. We found no difference between graduates of SGFP and other schools in their prior attachment to medically underserved communities.

A. WHAT ARE THE DEMOGRAPHIC CHARACTERISTICS OF PNT GRADUATES IN 1997 AND 1998?

Middle-aged women dominate the survey population of nurse graduates (see Table II.1). The mean age of the nurse graduates is 40 years. Nearly three-quarters of all nurse graduates are in their thirties or forties, 11 percent are older than age 50 and 11 percent younger than age 30.[1] Given that nursing is a female-dominated occupation, it is not surprising that 90 percent of nurse graduates are woman. However, the proportion of male nurse graduates (seven percent) slightly exceeds the proportion of male RNs in the overall RN population.[2] According to a 1996 survey of RNs, under five percent of the RN population was male (DHHS 1997).

TABLE II.1 SOCIODEMOGRAPHIC CHARACTERISTICS OF PNT-SUPPORTED NURSE GRADUATES

Sociodemographic Characteristic	Percent (or Mean)
Age at Survey Interview	
Mean age (Years)	40.6
20 to 30 (Percent)	11.2
31 to 40	36.3
41 to 50	38.9
51 or older	10.9
Missing	2.7
Sex (Percent)	
Female	90.3
Male	7.2
Missing	2.5
Race (Percent)	
White only	84.9
Black or African American only	5.0
Asian only	2.3
Two or more races	2.0
Some other race only	1.8
American Indian or Alaskan Native only	0.4

Native Hawaiian or other Pacific Islander only	0.3
Missing	3.3
Ethnicity (Percent)	
Not Hispanic or Latino	92.9
Hispanic or Latino	4.2
Missing	2.9
Marital Status (Percent)	
Married	63.5
Single	16.7
Divorced	8.3
Living with partner	6.7
Separated	1.3
Widowed	0.4
Missing	3.1
Spouse or Partner's Job Influenced Choice of Current Job (Percent)	39.9
Has School-Aged Children	42.4
Missing	3.1
Has Children Younger than 7 Years (Percent)	22.3
Missing	3.3
Weighted Maximum Number of Respondents	**4,322**

SOURCE: Survey of Nurse Graduates.
NOTE: PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

The majority of nurse graduates in the survey (85 percent) report their race as white, and most nurse graduates (93 percent) report that they are not Hispanic. Only 12 percent of nurse graduates report belonging to a minority race. (The remainder did not report their race). For example, five percent report themselves as black or African American only, and 2.3 percent report themselves as Asian only. Fewer than one percent report themselves as American or Alaskan Native only or as Native Hawaiian or other Pacific Islander only. Another 1.8 percent report another race, and 2.0 percent report two or more races. This distribution does not differ markedly from that of the overall RN population in 1996. However, Hispanics seem to compose a larger proportion of the nurse graduate population (4.2 percent) than of the RN population (1.6 percent) (DHHS 1997).

The household and family characteristics of the nurse graduates are similar to those of RNs more generally. Sixty-four percent of nurse graduates report themselves as married, somewhat less than the RN population (72.3 percent in 1996), and about 17 percent report being single. Fewer than half (42.4 percent) the nurse graduates report having school-aged children, but one in five report having children younger than 7 years of age. Although the former figure closely follows that found in DHHS 1997 on RNs (54 percent with children of any age living at home), the finding that 20 percent of nurse graduates have children younger than age 7 seems slightly high in comparison. For example, only eight percent of RNs employed full-time in nursing report having children younger than 7 years of age. We do not have a ready explanation for this difference.

B. WHAT OTHER BACKGROUND INFORMATION CHARACTERIZES NURSE GRADUATES?

The Survey of Nurse Graduates also provides information about the educational and employment background of PNT-supported nurse graduates from the period preceding their entry into the program (Table II.2). Eighty-five percent of graduate nurses reported receiving a Bachelor's degree in nursing prior to entering graduate nurse training. Nearly three percent reported already having a Master's degree in nursing. Few nurses entered graduate programs with an associate degree in nursing (four percent) or a diploma in nursing (fewer than two percent) as their highest pre-graduate program nursing credential. Fewer than half the nurses had received degrees in other fields before entering their PNT-supported graduate program. Twenty-three percent had received a Bachelor's degree; 8 percent, an Associate's degree; 4.5 percent, a Master's degree; and fewer than 1 percent, a Doctorate in another field.

Nurse graduates reported long careers as RNs before beginning nursing training at the graduate level. On average, PNT-supported

nurse graduates report nearly 15 years since becoming an RN and an average of 14 years of experience working as an RN.

PNT-supported nurse graduates reported a broad range of experience and exposure to medically underserved communities before entering their PNT-supported graduate nurse programs. Nearly one-quarter reported providing services to residents in these communities prior to entering the program, and one-third reported having lived in medically underserved communities at some time in their lives.[3] Whereas 20 percent reported living in a medically underserved community during their formative years (under age 18), a higher fraction (28 percent) reported having lived in such a community as an adult.

TABLE II.2 PRE-TRAINEESHIP EXPERIENCES OF PNT-SUPPORTED NURSE GRADUATES

Pre-traineeship Experience	Percent (or Mean)
Education	
Highest Formal Nursing Education Before Graduate Training (Percent)	
Bachelor's degree in nursing	85.4
Associate's degree in nursing	4.4
Master's degree in nursing	2.7
Nursing Diploma	1.8
Other Master's degree	1.6
None/no degree	0.6
Missing	3.6
Years Since Becoming a Registered Nurse	14.6
Highest Non-Nursing Education (Percent)	
No other degree	57.3
Bachelor's degree	23.4
Associate's degree	7.7
Master's degree or higher	4.5
Other degree	1.0
Doctoral degree	0.3
Missing	5.8
Nurse Employment	
Last Job Prior to Entering PNT-Supported Graduate Program Included Providing Services to Residents in Medically Underserved Communities (Percent)	24.8
Unknown	3.5
Experience as a Registered Nurse (Mean Years)	14.1
Residence in a Medically Underserved Community	
Ever Lived in a Medically Underserved Community	33.8
Missing	3.5
Ever Lived in a Medically Underserved Community Before Age 18 (Percent)	19.6
Missing	3.7
Ever Lived in a Medically Underserved Community Since Age 18 (Percent)	28.2
Missing	3.7
Lived in a Medically Underserved Community Just Before Entering Graduate Program (Percent)	19.1
Missing	3.7
Weighted Number of Observations	**4,322**

SOURCE: Survey of Nurse Graduates.
PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

C. DO GRADUATES OF SGFP INSTITUTIONS DIFFER FROM GRADUATES OF NON-SGFP INSTITUTIONS?

The graduates of SGFP institutions and non-SGFP institutions did not exhibit any major, policy-relevant, statistically significant differences in demographic characteristics, education, or residence in medically underserved communities before entering graduate school. Although a few differences were statistically significant, all these differences are too small to suggest that there are any marked differences between the background characteristics of graduates from SGFP institutions and those from non-SGFP institutions. However, the graduates of non-SGFP institutions did have higher rates of employment in medically underserved communities before entering graduate school.

Demographic Characteristics

· There were few differences in age, sex, or ethnicity between graduates of SGFP schools and graduates of other schools. We found few differences and none was large in absolute terms (see Table II.3). For example, a higher proportion of nurse graduates from SGFP institutions than non-SGFP institutions were Asian (2.5 percent, compared with 0.72 percent).

· Graduates of SGFP institutions are only slightly different from those of non-SGFP institutions in marital status For example, the proportion of graduates of SGFP institutions reporting being single (16 percent) is nearly six percentage points lower than the proportion of graduates from non-SGFP institutions (22 percent) reporting this marital status ($p = 0.011$, see Table II.3).

TABLE II.3 SOCIODEMOGRAPHIC CHARACTERISTICS OF PNT-SUPPORTED NURSE GRADUATES, BY SGFP STATUS

Sociodemographic Characteristic	SGFP Institutions[a]	Non-SGFP Institutic
Age at Survey Interview (Percent)		
Mean age	40.6	40.5
20 to 30	11.1	12.1
31 to 40	36.1	37.7
41 to 50	39.3	34.9*
51 or older	10.6	13.5
Missing	2.8	1.7
Sex (Percent)		
Female	90.1	92.7
Male	7.3	5.6
Missing	2.6	1.7
Race (Percent)		
White only	84.7	86.5
Black or African American only	4.9	6.0
Asian only	2.5	0.7**
Two or more races	2.0	2.2
Some other race only	1.8	2.3
American Indian or Alaskan Native only	0.4	0.0
Native Hawaiian or other Pacific Islander only	0.3	0.0

Missing	3.4	2.3
Ethnicity (Percent)		
Hispanic or Latino	4.3	2.9
Not Hispanic or Latino	92.7	94.8
Missing	3.0	2.3
Marital Status (Percent)		
Married	64.0	59.2*
Single	16.2	22.1**
Divorced	8.3	8.8
Living with partner	6.7	6.3
Separated	1.3	1.0
Widowed	0.4	0.6
Missing	3.2	2.0
Spouse or Partner's Job Influenced Choice of current Job (Percent)	40.1	37.9
Has School-Aged Children	42.7	39.0
Missing	3.1	3.6
Has Children Younger than 7 Years (Percent)	22.4	21.3
Missing	3.3	3.8
Weighted Maximum Number of Respondents	**3,932**	**390**

Source: Survey of Nurse Graduates
Note: Statistical tests are *t*-tests of comparisons of means or proportions across SGFP and non-SGFP subsamples of nurse graduates.

[a] We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.

PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

*Significantly different from zero at the .10 level, two-tailed test.
** Significantly different from zero at the .05 level, two-tailed test.
*** Significantly different from zero at the .01 level, two-tailed test.

Education Before Graduate School

· Relative to graduates of non-SGFP schools, graduates of SGFP schools are less likely to have received a Bachelor's degree in nursing (85 percent versus 90 percent; $p = 0.020$) but are more likely to have received a Bachelor's degree in a non-nursing field (24 percent versus 19 percent; $p = 0.027$).

Residence in a Medically Underserved Community Before Graduate School

· We found no indication that SGFP institutions are any more likely than non-SGFP institutions to attract students who have lived in medically underserved communities.

Although one-third of nurse graduates report having lived in a medically underserved community, there was no difference in prior residence in a medically underserved community by the SGFP status of the graduating institution (see Table II.4). Although SGFP institutions are thought to differentially recruit students from those areas to increase the likelihood of later placement in medically underserved communities, they do not appear to have done so.

Employment Before Graduate School

· We found a small difference between SGFP and non-SGFP schools in the percentage of nurse graduates whose last job prior to entering the graduate program was providing services to residents in medically underserved communities.

The percentage of nurse graduates from non-SGFP institutions who had provided those services (29 percent) was more than four percentage points higher than the corresponding percentage for nurse graduates from SGFP institutions.

This result contradicts our expectation that SGFP institutions would have recruited proportionately more RNs with experience working in medically underserved communities

TABLE II.4 PRE-TRAINEESHIP EXPERIENCES OF PNT-SUPPORTED NURSE GRADUATES, BY SGFP STATUS

Pre-traineeship Experience	SGFP Institutions[a]	Non-SGFP
Education		
Highest Formal Nursing Education Before Graduate Training (Percent)		
Bachelor's degree in nursing	84.9	9(
Associate's degree in nursing	4.4	4
Master's degree in nursing	2.8	2
Nursing Diploma	1.6	1
Other Master's degree	1.9	(
None/no degree	0.6	(
Missing	3.8	1
Years Since Becoming a Registered Nurse	14.6	1
Highest Non-Nursing Education (Percent)		
No other degree	56.8	6:
Bachelor's degree	23.9	18
Associate's degree	7.5	9
Master's degree or higher	4.6	:
Other degree	1.0	(
Doctoral degree	0.3	(
Missing	6.1	3
Nurse Employment		
Last Job Prior to Entering PNT-Supported Graduate Program Included Providing Services to Residents in Medically Underserved Communities (Percent)	24.1	2{
Unknown	3.5	:
Experience as a Registered Nurse (Mean Years)	14.0	1
Residence in a Medically Underserved Community		
Ever Lived in a Medically Underserved Community	33.6	3
Missing	3.6	:
Ever Lived in a Medically Underserved Community Before Age 18 (Percent)	19.4	2
Missing	3.7	:
Ever Lived in a Medically Underserved Community Since Age 18 (Percent)	28.0	2
Missing	3.7	:
Lived in a Medically Underserved Community Just Before Entering Graduate Program (Percent)	19.1	1
Missing	3.7	:
Weighted Number of Observations	**3,932**	**3**

Source: Survey of Nurse Graduates.
Note: Statistical tests are t-tests of comparisons of means or proportions across SGFP and non-SGFP subsamples of nurse graduates.

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.

PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

*Significantly different from zero at the .10 level, two-tailed test.
** Significantly different from zero at the .05 level, two-tailed test.
*** Significantly different from zero at the .01 level, two-tailed test. Significantly different from zero at the .01 level, two-tailed test.

D. CONCLUSION

Our results show that, with the exception of a few characteristics, the demographic profile of PNT-supported nurse graduates largely reflects the profile of the overall RN population. The two exceptions are sex and Hispanic ethnicity as nurse graduates are more likely to be male and Hispanic. PNT-supported nurse graduates have long careers as RNs before entering graduate nurse training. Moreover, a sizable proportion have worked and lived in medically underserved communities. With the exception of marital status and type of Bachelor's degree obtained, there are no differences in the characteristics of nurses graduating from SGFP institutions and nurses graduating from non-SGFP institutions. However, graduates of non-SGFP schools are more likely to report having been employed in a medically underserved community immediately before going into the PNT-supported graduate nursing program.

[1] Nurse graduates have had perhaps lengthy careers as registered nurses (RNs). As shown in Table II.2, they have worked for an average of 14.6 years since becoming an RN.

[2] A small proportion (2.5 percent) of nurses did not report their sex.

[3] As discussed in Chapter I, the nurses reported whether they had lived or worked in a medically underserved community based on the definition provided in the survey instrument.

III. NURSE GRADUATE EDUCATIONAL AND TRAINING EXPERIENCE

Professional Nurse Traineeship (PNT) grants help RNs finance their advanced nursing education. In this chapter, we describe the nature of PNT-supported nurse graduates' education and training. We explore differences in the training experiences of students graduating from SGFP and non-SGFP institutions, paying particular attention to SGFP/Non-SGFP differences in the provision of special courses, placement assistance, and other incentives to work in medically underserved communities. Finally, we investigate the relationship between receipt of those incentives and employment in medically underserved communities upon graduation. In doing so, we measure correlates of being employed in a medically underserved community, an issue we explore in greater depth in Chapter IV.

A. WHAT AREAS OF TRAINING DID PNT-SUPPORTED NURSE GRADUATES RECEIVE?

Nurse graduates received graduate training in a number of different areas. Three-quarters of PNT-supported nurses graduated as nurse practitioners (see Table III.1). Sizable numbers of nurse graduates also listed clinical nurse specialist (15 percent), nurse educator (9 percent), and nurse midwifery (9 percent). Smaller proportions reported graduate training as nurse anesthetists (5 percent), public health nurses (3 percent), and nurse administration (0.4 percent). Less than 2 percent listed some other area of graduate training.

Graduate nurses reported specializing in more than 38 areas (Table III.2) but primarily in family care (42 percent) and adult care (13 percent). No other specialty area constituted more than seven percent of nurse graduates. However, a sizable number of nurse graduates reported receiving graduate training in the following seven areas: (1) pediatric care (7 percent), (2) nurse midwife master's, (6 percent), (4) primary care (5 percent), (5) OB/GYN or women's health (5 percent), (6) nurse anesthesia (4 percent), and geriatrics/gerontology (4 percent).

Most PNT-supported nurses received a master's degree upon graduation (see Table III.3). Ninety-five percent of graduates (from both school years) reported receiving a Master's degree upon graduation. Only three percent reported receiving a nurse midwifery certificate.[1], and two percent reported receiving a nurse practitioner's certificate. Fewer than one percent of nurse graduates reported receiving a doctoral degree. The balance of nurse graduates reported receiving some other kind of certificate or degree,

or they did not answer the question.

On average, PNT-supported nurse graduates spent less than three years in their graduate programs (see Table III.4). The majority (58 percent) of nurse graduates reported completing the program in two years, and a quarter of nurse graduates reported completing their program in three years. Ten percent reported taking more than three years to complete their program—a fraction greater than the number completing a doctoral degree, which we would expect to take that long. This suggests that a substantial minority of nurse graduates went to school part-time.[2] Over 90 percent of nurse graduates report receiving PNT support for up to two years (see Table III.5). A large share of nurse graduates (69 percent) reported PNT support covered tuition. A third of nurse graduates report that PNT support covered books, fees, or both, and 21 percent reported PNT paid them a stipend.

TABLE III.1 AREA OF GRADUATE TRAINING OF PNT-SUPPORTED GRADUATES, BY SGFP STATUS.

Area	Total	SGFP[a] Institution	Non-SGFP Institution
Nurse practitioner	75.8	76.84	64.96***
Clinical nurse specialist	14.7	14.59	16.29
Nurse educator	9.3	8.99	12.40
Nurse midwifery	8.8	9.49	1.62***
Nurse anesthetist	4.6	3.85	12.40***
Public health nurse	3.3	3.30	3.02
Other	1.9	1.77	3.69*
Nurse administration	0.4	0.34	0.70
Weighted Number of Observations	**4,322**	**3,932**	**390**

Source: Survey of Nurse Graduates.
Note: Statistical tests are t-tests of the hypothesis that the proportions (or means for continuous variables) are equal across SGFP and non-SGFP samples of nurse graduates.

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.

PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

*Significantly different from zero at the .10 level, two-tailed test.
** Significantly different from zero at the .05 level, two-tailed test.
*** Significantly different from zero at the .01 level, two-tailed test.

TABLE III.2 SPECIALTY AREAS OF PROFESSIONAL NURSE TRAINEES, BY SGFP STATUS

Specialty	Total	SGFP[a] Institution	Non-SGFP Institution
Family care	42.2	43.99	24.06***
Adult care	12.8	12.57	14.77
Pediatric care	6.6	6.26	9.98**
Nurse-midwife-masters	5.6	6.05	1.62
Primary care	4.8	4.97	3.09
OB/GYN/women's health	4.5	4.60	3.58
Nurse anesthesia	4.2	3.49	11.40***
Geriatrics/gerontology	4.1	3.30	11.97***
Psychiatric/mental health	3.3	3.29	3.49
Acute care	3.0	3.14	1.72
Nurse-midwife-certificate	2.6	2.85	0.00
Community health (excludes public health)	2.4	2.28	3.36

Other	1.7	1.62	1.97
Nursing education	1.5	1.34	2.87
Maternal-child/parent-child health	1.3	1.16	2.20
Critical care	1.2	1.11	2.28*
Neonatal	1.1	1.18	0.0*
Public health	0.7	0.75	0.29
Medical-surgical	0.4	0.35	0.66
Oncology	0.4	0.34	0.97
Chronic/long-term care	0.3	0.24	0.61
Case management	0.3	0.28	0.96*
Research	0.3	0.30	0.60
Perinatal care	0.2	0.18	0.00
Rural health	0.2	0.19	0.00
Adolescent care	0.1	0.13	0.0
Genetics	0.1	0.07	0.38*
Occupational health	0.1	0.07	0.00
Rehabilitation	0.1	0.11	0.00
School health	0.1	0.03	0.28*
Informatics	0.1	0.07	0.00
Emergency	0.1	0.11	0.0
Family Nurse Practitioner	0.1	0.10	0.0
Environmental health	0.0	0.04	0.00
Home health	0.0	0.00	0.39***
Immunosuppressive nursing	0.0	0.04	0.00
Infection control	0.0	0.04	0.00
Public policy	0.0	0.04	0.00
Weighted Number of Observations	**4,322**	**3,932**	**390**

Source: Survey of Nurse Graduates
Note: Statistical tests are t-tests of the hypothesis that the proportions (or means for continuous variables) are equal across SGFP and non-SGFP samples of nurse graduates.

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.

PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

*Significantly different from zero at the .10 level, two-tailed test.
** Significantly different from zero at the .05 level, two-tailed test.
*** Significantly different from zero at the .01 level, two-tailed test.

TABLE III.3 DEGREE OR CERTIFICATE OF PROFESSIONAL NURSE TRAINEES, BY SGFP STATUS

Degree or Certificate	Total	SGFP[a] Institution	Non-SGFP Institution

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Master's degree	94.5	94.24	96.90*
Nurse midwifery certificate	2.9	3.16	0.28***
Doctoral degree	0.7	0.56	2.15***
Other	0.2	0.17	0.33
Unknown	1.7	1.87	0.34*
Weighted Number of Observations	**4,322**	**3,932**	**390**

Source: Survey of Nurse Graduates
Note: Statistical tests are t-tests of comparisons of means or proportions across SGFP and non-SGFP subsamples of nurse graduates.

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.

PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

*Significantly different from zero at the .10 level, two-tailed test.
** Significantly different from zero at the .05 level, two-tailed test.
*** Significantly different from zero at the .01 level, two-tailed test.

TABLE III.4 YEARS IN GRADUATE PROGRAM OF PROFESSIONAL NURSE TRAINEES, BY SGFP STATUS

Years in Graduate Program	**Total**	**SGFP[a] Institution**	**Non-SGFP Institution**
Year Graduated from PNT-Supported Graduate Program (Percent)			
1997	50.0	49.1	58.2***
1998	50.0	50.9	41.8***
Years in Graduate Program (Percent)			
One year	5.7	5.9	4.2
Two years	58.3	58.5	56.5
Three years	25.6	25.3	27.8
More than three years	10.0	10.0	10.4
Unknown	0.3	0.3	1.0**
Weighted Number of Observations	**4,322**	**3,932**	**390**

SOURCE: Survey of Nurse Graduates
Note: Statistical tests are t-tests of comparisons of means or proportions across SGFP and non-SGFP subsamples of nurse graduates. NOTE: *t*

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.

PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

*Significantly different from zero at the .10 level, two-tailed test.
** Significantly different from zero at the .05 level, two-tailed test.
*** Significantly different from zero at the .01 level, two-tailed test.

TABLE III.5 EDUCATIONAL TRAINING AND EXPERIENCES OF PROFESSIONAL NURSE TRAINEES, BY SGFP STATUS

Educational Training and Experience as Trainee	**Total**	**SGFP[a] Institution**	**Non-SGFP Institution**
Number of Years Received PNT Support			
Up to one year	54.4	54.2	56.6
One to two years	38.7	38.9	36.7

Two to three years	3.9	3.9	4.0
Something else	1.1	1.1	1.0
Don't know	1.3	1.3	1.77
Missings	0.4	0.4	0.0
Last School Year in Which PNT Funding Was Received (Percent)			
1996 - 1997	42.9	42.4	48.0*
1997 - 1998	31.8	32.2	28.2
Other	25.3	25.5	23.8
Months of PNT Support In Last Year Received PNT			
Mean	7.7	7.7	7.7
Less than 6 months (Percent)	24.1	23.9	26.0
6 to 9 months	65.7	65.7	65.5
Over 9 months	6.0	6.0	5.6
Missing	4.2	4.29	2.81
PNT Support Covered:			
Tuition	68.9	68.5	73.1
Fees	33.1	32.5	38.9
Books	33.0	32.7	36.2
Stipend	20.8	20.1	28.0*
Annual Tuition and Fees (Mean) (dollars)	7,511	7,554	7,090
PNT support in last year of program (dollars)	1,843	1,836	1,915
Estimated Percent of Graduate Education (Tuition and Fees) Financed by the PNT Program in last year received (Mean percent)	41.5	41.2	45.3*
Weighted Number of Observations	**4,322**	**3,932**	**390**

SOURCE: Survey of Nurse Graduates
NOTE: Statistical tests are *t*-tests of comparisons of means or proportions across SGFP and non-SGFP subsamples of nurse graduates.

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.

PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

*Significantly different from zero at the .10 level, two-tailed test.
** Significantly different from zero at the .05 level, two-tailed test.
*** Significantly different from zero at the .01 level, two-tailed test.

PNT support was substantial for many nurse graduates. Mean tuition and fees among nurse graduates in the last year of graduate training was $7,511, and mean PNT support during that period was $1,843. This suggests that the PNT program covers only 25 percent of tuition and fees ($1,843/$7,511 = 0.245 or 25 percent). However, the mean ratio of PNT support to tuition and fees across all nurse graduates is, on average, 42 percent. Although this figure does not represent perfectly the mean percentage of tuition and fees covered by the PNT program (because PNT funds could have been used to pay a stipend, instead of tuition), it does suggest that PNT support is a substantial component of financial aid for many nurse graduates.

B. HOW MANY YEARS OF EXPERIENCE AS REGISTERED NURSES DO PNT-SUPPORTED GRADUATES HAVE? WHAT WAS THE LENGTH OF TIME BETWEEN THEIR BASIC EDUCATIONAL PREPARATION AND THE BEGINNING OF THEIR GRADUATE EDUCATION?

As noted in Chapter II, nurse graduates reported 15 years since becoming an RN, and most have worked as RNs for the entire time. Given that most nurse graduates (58 percent) report spending two years in their graduate program, we estimate that roughly 12 years elapsed between the time they became RNs and their entry into their graduate nursing program. That is to say, most

PNT-supported students already have a great deal of prior work experience as RNs.

C. WHAT KINDS OF SPECIAL COURSES AND INCENTIVES DID NURSE GRADUATES RECEIVE TO PROMOTE FUTURE EMPLOYMENT IN MEDICALLY UNDERSERVED COMMUNITIES?

Few nurse graduates had direct requirements to work in medically underserved communities, but most received indirect incentives to do so (see Table III.6). Only six percent of nurse graduates reported that their school actually required a statement of commitment to practice in a rural or medically underserved community as a requirement for receiving financial assistance.[3] However, a sizable number of nurse graduates reported special courses or graduate rotations in medically underserved communities *required*[3]—incentives that might indirectly affect future employment in such areas. For example, 45 percent of nurse graduates report that their school required them to take special courses on providing health care in rural or medically underserved communities. Nearly 70 percent reported providing services to residents in medically underserved communities during graduate rotations or clinical preceptorships. Eighty-seven percent of nurse graduates reported graduate rotations or clinical preceptorships located in urban areas (44.1 + 42.4 = 86.5), and over half reported them in rural areas. Some of these rotations and preceptorships were likely in medically underserved communities. Moreover, one in five nurse graduates reported living in a medically underserved community during graduate training.

TABLE III.6 SCHOOL EXPERIENCES AND INCENTIVES OF PROFESSIONAL NURSE TRAINEES, BY SGFP STATUS

School Experiences and Incentives	Total	SGFP[a] Institution	Non-SGFP Institution
School Required Students to Sign a Statement of Commitment to Practice in a Rural or Medically Underserved Community as a Requirement for Receiving Financial Assistance	6.1	6.0	6.8
Unknown	2.6	2.5	3.1
School Required Students to Take Courses on Providing Health Care in Rural or Medically Underserved Communities	44.8	45.2	40.1
Unknown	0.5	0.45	0.6
Provided Services to Residents in Medically Underserved Communities During Graduate Rotations or Clinical Preceptorships (Percent)	69.7	69.8	68.4
Geographic Location of Rotations or Clinical Preceptorships (Percent)			
Urban only	44.1	44.6	39.6
Rural only	9.9	10.0	9.2
Both Urban and Rural	42.4	41.8	48.5
Missing	3.5	3.6	2.6
Lived in an MUC During Graduate Training (Percent)	20.3	20.2	21.5
Unknown	3.1	3.2	2.6
Weighted Number of Observations	4,322	3,932	390

D. ARE STUDENTS WHO RECEIVED INCENTIVES AND SPECIAL COURSES MORE LIKELY TO WORK IN MEDICALLY UNDERSERVED COMMUNITIES?

We defined employment in a medically underserved community by whether it was a designated facility serving the medically underserved (for example, a community health care center) or whether the employment site's ZIP code was located in a full county health professional shortage area or medically underserved area (see Chapter I). We calculated the proportion of students who received incentives who were currently employed in medically underserved communities at the time of survey.

Nurse graduates who received incentives or special courses during graduate training were more likely to report current employment in medically underserved communities than nurse graduates who did not receive incentives or special courses. First,

the strongest association is between current employment in a medically underserved community and whether the school required students to sign a letter of commitment to serve in medically underserved communities in return for financial assistance. The proportion of nurse graduates currently employed in medically underserved communities from schools with the requirement (60 percent) is 25 percentage points higher than the corresponding proportion for nurse graduates from schools lacking the requirement (36 percent) (see Table III.7). Second, nurse graduates from schools that required special courses on providing health care in rural or medically underserved communities report current employment in medically underserved communities at a higher rate than nurse graduates from schools lacking the requirement (40 percent compared to 36 percent). Finally, there is a positive association between providing services to residents in medically underserved communities during graduate rotations of clinical preceptorships, on the one hand, and current employment in a medically underserved community, on the other. Whereas the proportion currently employed in medically underserved communities is only 26 percent for nurse graduates who did not provide such services, the corresponding proportion for nurse graduates who did was 43 percent.

We cannot make statements of causation from these bivariate results. However, that all three school incentives have statistically significant associations—and in the expected direction—with current employment in a medically underserved area is evidence that such incentives and school experiences are important factors in the likelihood of employment in a medically underserved community. We will identify other potential factors in the next chapter.

TABLE III.7 RELATIONSHIP BETWEEN SCHOOL INCENTIVES AND PNT RECIPIENTS' CHOICE OF WORKSITE SGFP STATUS

	Percent Currently Employed in MUC		
School Incentives	**All Institutions**	**SGFP Institution**	**Non-SGFP Institution**
All Graduates[a]			
All Respondents	37.7	37.1	43.8
School required students to take courses on providing health care in rural or medically underserved communities			
Yes	40.4	40.4	40.7
No	35.6***	34.5***	45.8
School required students to sign a statement of commitment to practice in a rural or medically underserved community as a requirement for receiving financial assistance			
Yes	60.1	58.9	71.4
No	36.1***	35.6***	42.0**
Provided services to residents in medically underserved communities during graduate rotations or clinical preceptorships			
Yes	42.5	41.8	49.0
No	26.4***	25.8***	31.8***

Source: Survey of Nurse Graduates.
Note: Two-by-two tables were used to determine evidence for a statistical association between with nurse graduates' employment sites. A chi-squared test was used to determine the level of statistical significance. Statistical tests were performed separately for subsamples of nurse graduates from SGFP and non-SGFP institutions. The analysis is based on a weighted total of 4,322 nurse graduates, 1932 of whom were in SGFP institutions.

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.

MUC = medically underserved community; PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

* Significantly different from zero at the .10 level, two-tailed test.
**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

E. ARE SGFP INSTITUTIONS MORE LIKELY TO USE INCENTIVES TO ENCOURAGE THEIR GRADUATES TO WORK IN MEDICALLY UNDERSERVED AREAS?

One might hypothesize that SGFP institutions would make a greater effort to place graduates in medically underserved communities in order to maintain their increased funding. However, we found no difference in the provision of incentives by the SGFP status of graduating institutions (see Table III.6). Differences are small between SGFP and non-SGFP institutions in the proportion of nurse graduates who do and do not report (1) schools requiring letters of commitment, (2) residing in medically underserved communities during graduate school, and (3) providing services to residents in medically underserved communities for rotations or preceptorships. Furthermore, none of those differences is statistically significant.

Nurse graduates from SGFP and non-SGFP institutions seem to differ in other respects, however. First, the proportion if nurse graduates from SGFP institutions who trained as nurse practitioners (77 percent) or in nurse midwifery (9 percent) is significantly higher than the proportion if nurse graduates from non-SGFP institutions who trained as nurse practitioners (65 percent) or in nurse midwifery (2 percent) (Table III.1). The proportion of nurse graduates from non-SGFP institutions who trained as nurse anesthetists (12 percent) is three times higher than the proportion from SGFP institutions who trained as nurse anesthetists (4 percent).

Second, although family care and adult care were the most frequent areas of specialization from both types of schools, nurse graduates from SGFP institutions specialized disproportionately in family care (Table III.2). Whereas only 24 percent of nurse graduates from non-SGFP institutions specialized in family care, 44 percent of nurse graduates from SGFP institutions specialized in family care. Nurse graduates from non-SGFP institutions are less dispersed across multiple specialties; instead, they are grouped around several critical specialties. For example, compared to nurse graduates from SGFP institutions, nurse graduates from non-SGFP institutions are more likely to specialize in geriatrics/gerontology (12 percent), nurse anesthesia (11 percent), and pediatric care (10 percent). Given these differences, it is not surprising that SGFP and non-SGFP institutions differ in the proportion of PNT-supported nurse graduates receiving various degrees or certificates. Compared to graduates from SGFP institutions, graduates from non-SGFP institutions were more likely to receive a Master's degree or doctoral degree but less likely to receive a nurse midwifery certificate.

Third, possibly owing to higher tuition levels at SGFP institutions, PNT funds cover a lower proportion of tuition for SGFP-trained nurse graduates than for non-SGFP-trained nurse graduates (See Table III.5). The mean ratio of PNT support to tuition and fees (in the last year of PNT support) was 41 percent for nurse graduates from SGFP institutions and 45 percent for nurse graduates from non-SGFP institutions.

F. CONCLUSION

We found that most PNT-supported nurse graduates received master's degrees and that many graduate as nurse practitioners. These nurse graduates specialized in a wide variety of areas, although the area of specialization varies by the SGFP-status of nurse graduates' institutions.

We also found an association between employment in medically underserved areas after graduation and various incentives schools can use to improve placements.

Nurse graduates whose schools required them to (1) take courses on providing health care services in rural and medically underserved communities, or (2) sign a statement of commitment to work in a medically underserved community in exchange for financial aid had much higher rates of employment in medically underserved communities than other nurse graduates. However, we found that SGFP and non-SGFP institutions did not differ in their use of any of these incentives. Furthermore, nurse graduates who had provided services in medically underserved communities during graduate rotations or clinical preceptorships have higher rates of current employment in a medically underserved community than nurse graduates lacking such experience. Again, we found no difference between nurse graduates from SGFP and non-SGFP institutions in the proportion that had worked in a medically underserved community during graduate training. We will explore these and other correlates of employment in medically underserved communities in more detail in the next chapter. We defined employment in a medically underserved community by whether it was a designated facility serving the medically underserved (for example, a community health care

center) or whether the employment site's ZIP code was located in a full

[1]A small fraction of nurse graduates (1.6 percent) reported receiving a nurse practitioner certificate. Nurse graduates receiving a nurse practitioner certificate only are ineligible to receive PNT funds. We do not know whether or not these nurse graduates also received a master's or other degree or certificate for which they received PNT support. Because the survey did not allow respondents to report multiple degrees or certificates, we assumed they did receive PNT funds and were eligible.

[2]Only full-time students are eligible for PNT funding.

[3]Because schools entering in the PNT program for the first time lack a record of student placements in medically underserved communities, HRSA requires those schools to have their graduate students sign a statement of commitment to work in medically underserved communities in return for PNT support.

IV. THE EMPLOYMENT OF NURSE GRADUATES

The Survey of Nurse Graduates provides the first evidence that the PNT program is fulfilling its GPRA requirement to place 40 percent of PNT-supported nurse graduates in medically underserved communities. Using respondents' reports of place of employment after graduation, we examine the role of the Statutory General Funding Preference (SGFP) on nurse graduates' employment sites after graduation. We also explore the employment experience of nurse graduates after graduation, paying particular attention to their decisions to search for, accept, or decline offers to work in medically underserved communities. Finally, we identify correlates of employment in medically underserved communities, information HRSA can use in the future to better identify those RNs who are most predisposed to serve residents of medically underserved communities.

Employment in Medically Underserved Communities. We use two separate constructs for analyzing the employment sites of PNT-supported nurse graduates. To assess the success of the PNT program, we estimate the proportion of nurse graduates who have been employed in a medically underserved community since graduation, based on the job at which they spent the most hours since graduation. This measure most accurately reflects the statutory language of "placements" of PNT-supported nurse graduates into medically underserved communities.

We also estimate the proportion of nurse graduates whose *current* employment is in medically underserved communities (based on current employment of at least eight hours a week in up to two different positions). (See Chapter I for full definitions.) In our analysis of the correlates of employment in medically underserved communities, we use the current employment measure. This is a more conceptually clear measure of nurse graduates' decisions as to where to seek employment, since the measure excludes the employment sites nurse graduates may have left since graduation.

We constructed each of these two variables based on several items from the survey. First, nurse graduates were presented with a list of the various types of health care facilities defined as being found in medically underserved communities by virtue of the fact that the facilities serve vulnerable populations (for example, community health care centers). If the respondent checked that the employment site was one of those facilities, then we assumed that the employment site was in a medically underserved community. For example, 34.4 percent of nurse graduates reported currently being employed at an employment site that qualifies as one located in a medically underserved area. Second, the survey includes an item requesting respondents to report the ZIP code of the employment site.

If, among those whose employment site was not a qualified facility, the employment site's ZIP code was located in a full county Health Professional Shortage Area (HPSA) or Medically Underserved Area (MUA), we assumed that the employment site was located in a medically underserved community. Only 3.3 percent of nurse graduates were identified as currently employed in a medically underserved community, based on their ZIP code alone. The rest of the nurse graduates either were: (1) currently employed in ZIP codes not located in a full county HPSA or MUA, (2) did not provide a useable ZIP code, or (3) were not working at least eight hours per week at a current job.

The main weakness of this approach is that it does not identify nurse graduates whose employment site was located in a partial HPSA or MUA. Thus, we may underestimate employment in medically underserved communities.

A. WHAT PERCENTAGE OF NURSE GRADUATES RECEIVING PNT SUPPORT ARE EMPLOYED IN

MEDICALLY UNDERSERVED COMMUNITIES? ARE NURSE GRADUATES WHO RECEIVED PNT SUPPORT THROUGH SGFP INSTITUTIONS MORE LIKELY TO BE EMPLOYED IN MEDICALLY UNDERSERVED COMMUNITIES THAN PNT GRADUATES FROM NON-SGFP INSTITUTIONS?

Based on the job at which they spent the most hours since graduation, 45 percent of PNT-supported nurse graduates worked in a medically underserved community since graduation. (See Table IV.1.) However, fewer graduates (38 percent) reported working in a medically underserved community at the time of interview.[1] On the one hand, this result shows that the PNT program is fulfilling its requirement to place at least 40 percent of its PNT-supported nurse graduates in medically underserved communities; on the other, it shows that 7 percent of graduate nurses who were employed in medically underserved communities after graduation left those positions for employment elsewhere.

Contrary to expectations, nurse graduates from SGFP institutions were somewhat less likely than nurse graduates from non-SGFP institutions to have held their longest tenure job since graduation in a medically underserved community. Whereas 49 percent of nurse graduates from non-SGFP institutions were employed in a medically underserved community since graduation, only 44 percent of nurse graduates from SGFP institutions were employed in medically underserved communities since graduation (Table IV.1). Based on a one-tailed test, this difference was, in fact, significantly higher for graduates from non-SGFP institutions than for graduates from SGFP institutions ($p = 0.063$). The relationship between current employment and the SGFP status of graduating institutions shows an even stronger statistical relationship—again in favor of graduates from non-SGFP institutions working in medically underserved communities at higher rates than those from SGFP institutions (44 percent compared to 37 percent, $p = 0.011$)

TABLE IV.1 PERCENT EMPLOYED IN A MEDICALLY UNDERSERVED COMMUNITY, BY SGFP STATUS

School Incentives	Total	SGFP Institution	Non-SGFP Institution
Since Graduation, Job at Which Nurse Graduate Spent the Most Hours Is in MUC	44.7	44.3	48.9*
Currently Working at Least 8 Hours a Week in MUC	37.7	37.1	43.8**
Total Number of Observations	**4,322**	**3,932**	**390**

SOURCE: Survey of Nurse Graduates.
NOTE: The statistical tests are t-tests of the hypothesis that the proportions are equal across SGFP and non-SGFP samples of nurse graduates.
[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.
MUC = medically underserved community; PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.
*Significantly different from zero at the .10 level, one-tailed test.
**Significantly different from zero at the .05 level, one-tailed test.
***Significantly different from zero at the .01 level, one-tailed test.

These results are the opposite of what we expected. We cannot say, based on bivariate analysis alone, whether graduating from an SGFP institution decreases the likelihood of working in a medically underserved community after graduation. The negative association between graduation from SGFP institutions and employment in medically underserved communities could arise from differences in the characteristics of students across SGFP and non-SGFP institutions or differences in SGFP and non-SGFP schools, including differences in location. Without controlling for these student and school characteristics, we cannot say definitively that the funding preference is not effective.

B. ATTEMPTS TO FIND EMPLOYMENT IN MEDICALLY UNDERSERVED COMMUNITIES

To better understand why the rate of current employment in medically underserved communities was higher for nurse graduates from non-SGFP institutions, we compared differences in nurse graduates' attitudes and search behavior vis-à-vis employment in medically underserved communities.

More than half (58 percent) of the PNT-supported nurse graduates reported that they wanted to work in a medically underserved community. (See Table IV.2.) However, despite their lower rates of employment in medically underserved communities, graduates from SGFP institutions were more likely than graduates from non-SGFP institutions to report (1) wanting to work in a medically underserved community, or (2) searching for employment in a medically underserved community (among those not currently working in a medically underserved community). Fifty-nine percent of all SGFP students reported that they wanted to work in medically underserved communities following graduation—15 percentage points more than the 44 percent of SGFP students who actually worked in a medically underserved community following graduation.

TABLE IV.2 PERCENTAGE OF NURSE GRADUATES WHO HAD THE INTENTION TO WORK IN A MEDICALLY UNDERSERVED COMMUNITY AFTER GRADUATION, BY SGFP STATUS

Characteristic	Total	SGFP Institution	Non-SGFP Institution
Wanted to Work in an MUC Following Graduation (Among All Nurse Graduates)	58.1	58.5	53.2*
Has Searched for MUC Employment Since Graduation (Not Currently Working in an MUC)	24.7	25.4	17.5***
Has Received Offers for MUC Employment (Not Currently Working in an MUC)	4.1	4.2	3.2
Total Number of Observations	**4,322**	**3,932**	**390**

SOURCE: Survey of Nurse Graduates.
NOTE: The statistical tests are t-tests of the hypothesis that the proportions are equal across SGFP and non-SGFP samples of nurse graduates.

aWe assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.

MUC = medically underserved community; PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.
*Significantly different from zero at the .10 level, one-tailed test.
**Significantly different from zero at the .05 level, one-tailed test.
***Significantly different from zero at the .01 level, one-tailed test.

Whereas only 18 percent of non-SGFP graduates not currently working in a medically underserved community searched for employment there, 25 percent of SGFP nurses not currently working in medically underserved communities searched for jobs in those areas. We cannot say that SGFP nurse graduates' lower rate of current employment in medically underserved communities was from a lack of desire or effort.

Very few of those not currently employed in a medically underserved community actually received offers to work there (4 percent or fewer). Furthermore, there were no differences by the SGFP status of nurse graduates. This suggests SGFP/non-SGFP differences in the rate of current employment in medically underserved communities may not be the result of labor demand differences across SGFP and non-SGFP labor markets.

C. WHAT WERE THE EMPLOYMENT EXPERIENCES OF NURSE GRADUATES AFTER COMPLETING THEIR PNT-SUPPORTED PROGRAMS? WHY DID NURSE GRADUATES WANT TO WORK IN MEDICALLY UNDERSERVED COMMUNITIES? WHY DID THEY DECLINE OFFERS IN MEDICALLY UNDERSERVED COMMUNITIES?

Among nurse graduates currently employed in medically underserved communities, the mean number of months they reported

working in their current main position was 25 (Table IV.3). Among other clinical positions in a medically underserved community, the mean number of months was 29. Thus, nurse graduates are not only working in medically underserved communities at GPRA standard, but they seem to be staying in those positions for at least two years.

TABLE IV.3 STUDENTS' EMPLOYMENT SINCE ENTERING THEIR PNT GRADUATING INSTITUTIONS, BY SGFP STATUS

Employment Experience and Attitudes	Total	SGFP[a] Institution	Non-SGFP Institution
All Respondents			
Months Worked in an MUC (among those currently employed)			
Current main position	25.3	25.2	26.1
Other clinical positions	29.5	29.4	26.1
Geographic Location of Current Main Job			
Urban	58.9	59.0	57.8
Rural	15.4	15.5	14.2
Unknown	25.7	25.5	28.0
Worked for the Current Employer During Graduate Training	27.3	27.3	27.4
Unknown	60.0	60.1	59.6
Reasons for Wanting to Work in an MUC (among those who reported wanting to work in an MUC)			
Positions more rewarding professionally	35.9	36.3	31.5
Position provides greater autonomy	23.2	23.1	23.9
Desire to Live in a Small Community	18.8	18.5	22.2
Graduate school emphasized the importance of serving this type of community	16.7	16.7	15.8
In Gratitude for PNT Funding	11.3	11.2	11.9
Difficulty finding a position in other areas	7.3	7.3	7.3
Already Living/working in this area	4.0	0.5	0.3
I made a commitment to my school to practice in an MUC	3.8	3.8	4.4
Hours are more convenient than in other areas	3.6	3.6	4.0
Better salaries available	3.2	3.2	3.2
Loan repayment opportunity	2.0	2.1	1.3
Desire/commitment	1.6	1.7	0.3*
Want to help people of their own race	0.0	0.0	0.0
Something Else	9.4	9.3	10.4
Turned down Offers in MUCs (among those reporting they did not want to work in an MUC following graduation)	5.3	5.2	5.9
Unknown	1.1	1.2	0.0
Geographic Location of the MUC Employment Offer That was Turned Down (among those reporting they did not want to working an MUC following graduation)			
Rural	51.1	51.4	48.7
Urban	44.1	43.2	51.3
Both rural and urban	4.8	5.5	0.0
Reasons Cited for Turning Down Employment Offers in MUCs (among those not currently employed in an MUC)			
Salaries offered were too low	51.7	55.1	26.2
Lack of flexible work schedule	29.3	27.8	40.3

Positions offered would not be professionally rewarding	26.0	25.8	27.1
Lack of employment opportunities for spouse/partner	20.7	20.2	24.7
Community was geographically isolated	15.9	14.6	25.5
Lack of attractive leisure-time activities	8.2	7.5	13.3
Lack of adequate schools for children in the household	5.0	5.7	0.0
Distance	4.7	5.3	0.0
Job offer somewhere else	4.5	5.1	0.0
Lack of child care	1.6	1.9	0.0
Not enough hours/offered only part time job	1.6	1.8	0.0
Lack of appropriate housing	1.5	0.0	13.3*
Other	18.2	16.0	35.0
Total Number of Observations	**4,322**	**3,932**	**390**

SOURCE: Survey of Nurse Graduates.
NOTE: The statistical tests are t-tests of the hypothesis that the proportions are equal across SGFP and non-SGFP samples of nurse graduates.

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.

MUC = medically underserved community; PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.
*Significantly different from zero at the .10 level, two-tailed test.
**Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

Most nurse graduates were employed in urban locations, although a sizable number reported working in a rural location. Based on employment ZIP codes, 59 percent of nurse graduates reported that their current main job was in an urban area, while 15 percent reported that their current main job was in a rural area. However, we could not determine the geographic location of 26 percent of nurse graduates because respondents failed to report all or part of the ZIP code of their employment sites.

The 58 percent of nurse graduates who reported that they wanted to work in medically underserved communities (Table IV.2) reported a wide variety of reasons why they wanted to work in such communities. Thirty-six percent reported that positions in medically underserved communities were more professionally rewarding, and 23 percent reported that these positions provided greater autonomy. Nineteen percent reported wanting to work in a medically underserved community out of a desire to live in a small community. These nurse graduates, no doubt, were referring to isolated rural areas, even though some medically underserved communities are urban. Seventeen percent reported that the school emphasized the importance of serving this type of community. Eleven percent reported gratitude for PNT funding as an important reason for wanting to work in a medically underserved community.

Among those who reported that they *did not* want to work in a medically underserved community (42 percent), 5 percent received, but turned down, offers of employment in medically underserved communities. The reasons they cited for turning down those employment offers provide insight to those decisions. More than half reported turning down offers in medically underserved communities because salaries were too low. Twenty-nine percent reported a lack of a flexible work schedule, and 26 percent reported that the position would not have been professionally rewarding. One in five reported lack of opportunity for their spouse or partner.

We found few differences between graduates of SGFP and non-SGFP institutions with respect to these employment measures.

D. WHAT OTHER FACTORS ARE ASSOCIATED WITH CURRENT EMPLOYMENT IN MEDICALLY UNDERSERVED COMMUNITIES? DO THESE FACTORS DIFFER BY THE SGFP STATUS OF NURSE

GRADUATES' SCHOOLS?

We focused on determining whether there was evidence of an association between rates of current employment in a medically underserved community and: sociodemographic characteristics, years of experience as an RN, graduate training, prior residence or employment in a medically underserved community, school requirements, and attitudes. The methods we used to identify factors statistically associated with current employment in a medically underserved community depended on whether the variable we were exploring was binary or categorical. For binary variables, we estimated a series of two-by-two contingency tables of the binary variable (for example, sex) with current employment in a medically underserved community.[2] We used a chi-squared test to determine whether there was a statistically significant association between current employment in a medically underserved community and the level of the binary variable.

For categorical variables, we used logistic regression to estimate the likelihood of current employment in a medically underserved community as a function of a set of binary variables defined by each of the categories. We used a Wald chi-squared test to determine whether the entire set of binary variables that define the categorical measure significantly explains variation in the likelihood of current employment in a medically underserved area. For example, we used the Wald chi-squared test to determine whether race per se significantly explains variation in current employment in a medically underserved community.[3]

We repeated the process for subsamples of nurse graduates from SGFP and non-SGFP institutions respectively. To determine whether the correlates of current employment in a medically underserved community differ by the SGFP status of nurse graduates' schools, we (1) noted whether or not significant differences found in one subsample were not found in the other, and (2) gauged whether the magnitude of statistically significant effects seemed stronger for one subsample compared to the other.[4]

1. Sociodemographic Characteristics

Some sociodemographic measures are associated with current employment in a medically underserved area. First, although nurse graduates age 41 to 50 are significantly more likely than those under age 30 to be currently employed in a medically underserved community ($p = 0.010$) (not shown in table), age per se does not explain a significant amount of variation in current employment in a medically underserved community (see Table IV.4). Second, although most PNT-supported graduates are female, male nurse graduates are far more likely to report working in medically underserved communities. Whereas only 37 percent of female nurse graduates are employed in medically underserved communities, 48 percent of male nurse graduates are employed in medically underserved communities, a difference of nine percentage points.

Nurse graduates of minority races are more likely to report current employment in medically underserved communities. Nurse graduates who report themselves as American Indian or Alaskan Native alone report working in medically underserved communities at a rate higher than all other groups (excepting those few who did not report race). Their rate of current employment in medically underserved communities is significantly greater than those reporting themselves as Asian ($p = 0.060$) or White ($p = 0.095$) (not shown in table). Nurse graduates reporting themselves as Black or African American alone also report high rates of current employment in medically underserved communities. Their rate is also higher than those reporting themselves as Asian ($p = 0.003$) or White ($p = 0.011$). What is most striking, however, is that nurse graduates reporting themselves as Asian report the lowest rate of employment in a medically underserved community. Indeed, their rate is significantly lower than only other group. Given these differences, it comes as no surprise that race explains overall variation in current employment in a medically underserved community.

Ethnicity is another important correlate of current employment in a medically underserved community. The proportion

of nurse graduates reporting Hispanic or Latino (45 percent) is nearly eight percentage points higher than the proportion reporting not Hispanic or Latino (37 percent). The difference is significant at the 10 percent level.

Few family and household characteristics are associated with current employment in a medically underserved community. First, marital status variables do not explain a significant amount of variation in current employment in a medically underserved community. Nurse graduates reporting they were divorced have a significantly lower proportion of current employment in a medically underserved community compared to those reporting separated ($p = 0.038$) and single ($p = 0.038$). However, we find no other significant differences by marital status. Second, there was no statistical association between current employment in a medically underserved community and whether nurse graduates reported that the spouse or partner's job influenced their choice of the current job. This is true even if we control for whether or not the nurse graduate is currently married or living with a partner.

There is a statistical association between having school age children and current employment in a medically underserved community, but the direction of the effect is counterintuitive. The proportion currently employed in a medically underserved community is higher for those with school age children (41 percent) than those without school age children (35 percent). We had expected the opposite, based on the hypothesis that some nurse graduates would avoid taking jobs in areas that required them to move to locations with fewer educational and other opportunities for their children. The relationship is reversed among those with young children, but the difference is not statistically significant.

We found few differences between graduates of SGFP and non-SGFP institutions with respect to these measures. Whereas there was no association between age and rate of employment among those from SGFP institutions, there was an association for those from non-SGFP institutions (not shown in table). Nurse graduates age 41 to 50 were much more likely than other nurse graduates to be currently employed in a medically underserved community, if they were from non-SGFP institutions. Furthermore, unlike nurse graduates from SGFP institutions, for the non-SGFP subsample, race is not significantly associated with variation in current employment in medically underserved communities. However, nurse graduates reporting themselves as White have a higher rate of current employment in a medically underserved community if they were in the non-SGFP subsample.

2. Years of Experience as an RN

We find no clear relationship between years of experience as an RN and current employment in a medically underserved community. (See Table IV.5.) The proportion currently employed in a medically underserved community is the same for RNs with eight or more years as it is for RNs with four to seven years of experience: they are both 38 percent. Among nurse graduates with fewer than four years of prior experience as RNs, only 35 percent report current employment in a medically underserved community. However, the difference is not statistically significant.[5] Finally, there were no differences by SGFP with respect to this measure.

TABLE IV.4 RELATIONSHIP BETWEEN SOCIODEMOGRAPHIC CHARACTERISTICS AND CURRENT EMPLOYMENT IN A MEDIALLY UNDERSERVED COMMUNITY BY SGFP STATUS

	Percent Currently Employed in MUC[a]		
Sociodemographic Characteristics	**All Institutions**	**SGFP Institution**	**Non-SGFP Institution**
Age at Survey Interview			
20 to 30	33.0	32.0	42.3#
31 to 40	37.4	27.1	40.0
41 to 50	39.7	38.2	56.2
51 or older	36.7	37.9	27.1

Sex			
Male	48.2	48.2	47.9
Female	37.0***	36.3***	44.0
Race			
American Indian or Alaskan Native alone	60.6#	60.6#	0.0
Native Hawaiian or Other Pacific Islander alone	56.0	56.0	0.0
Black or African American alone	47.5	48.4	39.8
Asian alone	25.9	26.7	0.0
White alone	36.7	36.0	45.2
Some other race alone	46.3	48.1	32.1
Two or more races	40.9	42.3	29.1
Missing	68.2	100.0	64.5
Ethnicity			
Hispanic or Latino	45.3	45.0	50.5
Not Hispanic or Latino	37.4*	36.7*	43.7**
Marital Status			
Single	35.4	34.4	43.3
Divorced	43.3	41.5	57.0
Married	37.8	37.5	41.6
Widowed	41.8	40.7	48.8
Separated	26.4	23.4	67.7*
Living with partner	38.8	38.0	47.6
Spouse or Partner's Job Influenced Choice of Current Job			
Yes	37.0	36.6	41.4
No	39.2	38.7	43.9
Has School Age Children			
Yes	40.6	39.6	51.8
No	35.4**	35.1**	39.0**
Has Children Under 7 Years			
Yes	35.4	35.2	37.3
No	38.4	37.6	45.9
Total Number of Observations	**4,322.0**	**3,932.0**	**390.0**

SOURCE: Survey of Nurse Graduates.
NOTE: For categorical variables, logistic regression was used to determine evidence for a statistical association with nurse graduates' employment sites. Two-by-two tables were used to determine evidence for a statistical association with nurse graduates' employment sites. A chi-squared test was used to determine the level of statistical significance.

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support.

[b]Includes all 28 other specialists.

MUC = medically underserved community; PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.
*Significantly different from zero at the .10 level, two-tailed test.
**Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

[#]All measures simultaneously explain variation in nurse graduates' employment sites at the 10 percent level of statistical significance.

TABLE IV.5 RELATIONSHIP BETWEEN YEARS EMPLOYED AS A REGISTERED NURSE AND CURRENT EMPLOYMENT IN A MEDICALLY UNDERSERVED COMMUNITY, BY SGFP STATUS

	Percent Employed in a Medically Underserved Community		
Experience	**All Institutions**	**SGFP Institution**	**Non-SGFP Institution**
Under 3 years	35.1	35.2	33.5
4 to 7 years	37.9	37.3	44.0
8 years or more	37.9	37.2	44.6
Total Number of Observations	**4,322**	**3,932**	**390**

SOURCE: Survey of Nurse Graduates.
NOTE: Logistic regression was used to determine evidence for a statistical association with nurse graduates employment sites.
[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support.

3. Graduate Training

PNT-supported nurse graduates whose areas of graduate training included nurse midwifery or nurse anesthesia are currently employed in a medically underserved community at higher rates than PNT-supported nurse graduates who received other graduate training. (See Table IV.6.) The rates for nurse graduates who received advanced training in midwifery or anesthesia are six to 25 percentage points higher than the rates for graduates who received training in other areas.
Most of the differences are statistically significant. For example, graduates trained as nurse anesthetists have significantly higher rates than those who receive training as nurse practitioners ($p = 0.097$), clinical nurse specialists ($p = 0.020$), and other areas ($p = 0.001$).

Both clinical nurse specialist and other have significantly lower rates than several categories, including nurse anesthetist, nurse midwifery, nurse educator, and nurse practitioner. This suggests that graduate training as a clinical nurse specialist or in some other area of advanced practice is an important negative correlate of current employment in a medically underserved community indeed, the area of graduate training itself explains a significant amount of variation in current employment in a medically underserved community.

Among specialty areas that make up at least five percent of the total, the percentage of nurse graduates currently practicing in medically underserved communities varies from 27 to 46 percent. Graduate nurses' areas of specialty training explain a significant amount of variation in current employment in a medically underserved community. Those specialty areas exceeding the overall average rate of current employment in a medically underserved community (37 percent) include: adult care (41 percent), family care (42 percent), nurse-midwife-master's (42 percent), primary

care (41 percent), and nurse anesthetists (46 percent). All other specialties have lower-than-average rates geriatrics/gerontology (27 percent), pediatric care (30 percent), and all other specialties (27 percent).

TABLE IV.6 RELATIONSHIP BETWEEN SPECIALTY AND CURRENT EMPLOYMENT IN A MEDICALLY UNDERSERVED COMMUNITY

	Percent Employed in a MUC[a]		
Graduate Training	**All Institutions**	**SGFP Institution**	**Non-SGFP Institution**
Received Graduate Training for Advanced Practice as:			
Nurse anesthetist	44.8#	41.2#	54.7
Nurse midwifery	44.2	43.9	59.1
Nurse practitioner	38.2	37.6	45.3**
Nurse administration	25.3	21.1	46.0
Clinical nurse specialist	33.6	32.6	43.2
Public health nurse	36.9	35.4	54.5
Nurse educator	36.2	36.8	32.0
Other	19.3	19.9	16.4
Area of Specialty Training			
Adult care	40.6#	0.0#	0.0#
Family care	41.8	41.1	55.3**
Geriatrics/gerontology	27.1	25.9	30.4
Nurse-midwife-masters	41.7	41.2	59.1
OB/GYN/women's health	36.0	35.9	44.0
Pediatric care	29.6	28.5	36.7
Primary care	41.1	41.7	31.1
Nurse anesthesia	45.7	42.2	33.2
Degree or Certificate Upon Graduation			
Nurse Midwifery Certificate	56.5#	56.2#	100.0
Master's degree	37.1	36.5	43.9
Doctoral degree	25.4	30.1	13.1
Unknown	39.3	38.2	100
Other[b]	27.0	26.2	34.7
Total Number of Observations	**4,322**	**3,932**	**390**

SOURCE: Survey of Nurse Graduates.
NOTE: For categorical variables, logistic regression was used to determine evidence for a statistical association with nurse graduates' employment sites. Two-by-two tables were used to determine evidence for a statistical association with nurse graduates' employment sites. A chi-squared test was used to determine the level of statistical significance.

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support.

[b]Includes all 28 other specialists.

MUC = medically underserved community; PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.
*Significantly different from zero at the .10 level, two-tailed test.
**Significantly different from zero at the .05 level, two-tailed test.
***Significantly different from zero at the .01 level, two-tailed test.

#All measures simultaneously explain variation in nurse graduates' employment sites at the 10 percent level of statistical significance.

There are few differences between SGFP and non-SGFP schools in the rate of placement of graduates with various specialties in medically underserved communities. Area of specialty training significantly explains the variation in current employment in a medically underserved community, for both subsamples.

PNT-supported students who receive nurse midwifery certificates upon graduation are the most likely to be currently employed in a medically underserved community. The percentage currently employed in a medically underserved community for this group (57 percent) is significantly higher than nurse graduates who received a master's degree (37 percent, $p < 0.001$) (not shown in table) or doctoral degree (25 percent, $p < 0.001$).

The degree or certificate received upon graduation explains a significant amount of variation in current employment in a medically underserved community for all groups combined and for the subsample of nurse graduates from SGFP institutions, but not for the subgroup of nurse graduates from non-SGFP institutions.

4. Prior Residence or Employment in Medically Underserved Communities

The proportion of nurse graduates who work in medically underserved communities is higher among those who have lived or worked in a medically underserved community than among those who have not. (See Table IV.7.) Among nurse graduates who lived in a medically underserved area before age 18, 56 percent were currently employed in medically underserved areas. This figure is 23 percentage points higher than for those who had not lived in such a community while growing up. Living in a medically underserved community after age 18 is associated with current employment in a medically underserved area;[6] indeed, living in a medically underserved community just before entering the PNT-supported graduate program was even more strongly associated with current employment in a medically underserved community. Similarly, living in a medically underserved community during graduate training is associated with current employment in a medically underserved community. In general, the proportion employed in medically underserved communities is about 20 percentage points higher among those with some kind of prior residence in a medically underserved community than among those lacking such prior residence.

TABLE IV.7 DETERMINATION OF PNT RECIPIENTS' CHOICE OF WORKSITE AND DIFFERENCE BY FUNDING PREFERENCE OF STUDENTS' INSTITUTION

	Percent Employed in a MUC[a]		
Determinant of Choice of Work Setting	**All Institutions**	**SGFP Institution**	**Non-SGFP Institution**
Prior Residence in an MUC			
Ever Lived in an MUC Before Age 18			
Yes	55.8	55.5	57.9
No	33.2***	32.5***	39.8**
Ever Lived in an MUC Since Age 18			
Yes	55.6	55.2	59.2
No	30.5***	26.8***	36.9***
Lived in an MUC Just Before Entering Graduate Program			
Yes	61.0	60.8	62.5
No	32.1***	31.4***	38.9***
Ever Lived in an MUC			

Yes	54.1	53.6	58.5
No	29.1***	28.5***	35.8***
Lived in an MUC During Graduate Training (Percent)			
Yes	58.4	58.0	62.3
No	32.5***	31.9***	38.8***
Prior Employment			
Last Job Prior to Entering PNT-Supported Graduate Program, Included Providing Services to Residents in MUCs			
Yes	58.2	58.2	58.3
No	30.8***	30.0***	38.8***
Worked for the Current Employer During Graduate Training			
Yes	47.2	45.9	60.0
No	51.1	49.6	65.4
Provided Services to Residents in MUCs During Graduate Rotations or Clinical Preceptorships (Percent)			
Yes	42.5	41.8	49.0
No	26.4***	25.8***	31.8***
Geographic Location of Rotations or Clinical Preceptorships (Percent)			
Urban	32.5#	32.1#	37.1#
Rural	49.1	47.6	65.2
Both Urban and Rural	41.4	40.9	45.5
Total Number of Observations	**4,322**	**3,932**	**390**

SOURCE: Survey of Nurse Graduates.

NOTE: For categorical variables, logistic regression was used to determine evidence for a statistical association with nurse graduates' employment sites. Two-by-two tables were used to determine evidence for a statistical association with nurse graduates' employment sites. A chi-squared test was used to determine the level of statistical significance.

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support.

MUC = medically underserved community; PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

*Significantly different at the .10 level.
**Significantly different at the .05 level.
***Significantly different at the .01 level .
#All measures simultaneously explain variation in nurse graduates' employment sites at the 10 percent level of statistical significance.

Work experience in a medically underserved community is associated with current employment in a medically underserved community. Fifty-eight percent of nurse graduates with who worked in a medically underserved community just prior to entering the PNT-supported graduate program (compared to 31 percent who lacked such experience) were currently employed in a medically underserved communities. The difference is statistically significant. There is no significant difference, however, between nurse graduates who were or were not still working for their current employer since graduation in the proportion currently employed in medically underserved communities.

Among nurse graduates who provided services to residents in medically underserved communities during graduate rotations or clinical preceptorships, the proportion employed in medically underserved communities was 43 percent. The corresponding percentage among nurse graduates who lacked this experience, at 26 percent, was 17 percentage points lower. Our results indicate a stronger relationship among nurse graduates whose rotations or preceptorships

were in rural areas. Whereas the proportion currently employed in medically underserved communities was only 32 percent among those with urban rotations, the proportions were 49 and 41 percent, respectively, among those who had only rural or both urban and rural rotations or preceptorships. Indeed, the geographic location of rotations and clinical preceptorships significantly explains the variation in current employment in a medically underserved community (among those who had such clinical preceptorships and rotations).

There are few differences by SGFP status of nurse graduates on these measures.

5. School Requirements

As noted in Chapter III, school incentives are strongly associated with current employment in a medically underserved community. Nurse graduates from schools that require students (1) to take courses on providing health care in rural or medically underserved communities, or (2) to sign a statement of commitment to practice in rural or otherwise medically underserved community as a requirement for receiving financial assistance have higher rates of current employment in medically underserved communities than nurse graduates from schools lacking these requirements. The former relationship, however, is not statistically significant for nurse graduates from non-SGFP institutions.

6. Attitudinal Factors

The Survey of Nurses Graduate included an item that requests all respondents to identify those factors (among a preselected list) that they considered important in their employment decision. Only some of these attitudinal factors are strongly associated with current employment in a medically underserved community. (See Table IV.8.) The strongest include "the ability to serve needy patients" and "an expression of gratitude for receiving PNT support." The percentages of nurse graduates currently employed in medically underserved communities was 54 percent and 53 percent, respectively, among those who reported that serving needy patients and expressing gratitude for receiving PNT support were important considerations in their employment decisions.

TABLE IV.8 RELATIONSHIP BETWEEN ATTITUDES AND EMPLOYMENT SITE

	Percent Currently Employed in a MUC[a] Employment		
Factors Influencing the Choice of Work Setting	**All Institutions**	**SGFP Institution**	**Non-SGFP Institution**
Ability to serve needy patients			
Yes	53.7	53.1	59.3
No	28.6***	27.8***	36.3***
Expression of Gratitude for Professional Nurse Traineeship Support			
Yes	53.2	53.8	48.8
No	36.3***	35.7	43.7
Size of community			
Yes	40.7	39.7	48.4
No	37.6	37.0	43.6
Degree of autonomy in position			
Yes	40.0	39.1	47.6
No	35.8**	35.4**	39.8
Professionally Rewarding Position			
Yes	39.7	39.2	45.0
No	35.2**	34.4**	44.3
Appropriate Housing in the Area			

Yes	38.8	39.5	32.4
No	38.0	37.1	47.2**
Family originated from this area			
Yes	38.8	37.1	52.0
No	37.0	37.6	41.6
Attractive Leisure-Time Activities in the Area			
Yes	38.1	38.0	39.1
No	38.1	37.4	45.6
Adequate Schools for Children in the Household			
Yes	37.5	36.4	48.5
No	38.2	37.7	43.7
Attractive working hours			
Yes	36.3	35.8	41.1
No	39.8**	39.1*	48.2
Adequate Childcare in Area			
Yes	36.2	36.0	39.3
No	38.3	37.6	44.7
Adequate Salaries			
Yes	36.1	35.6	41.0
No	40.6***	39.8**	49.7
Employment Opportunities in the Area for your Spouse/Partner			
Yes	36.0	35.9	36.4
No	38.9	38.0	47.6
Something Else			
Yes	38.3	38.4	36.8
No	38.1	37.4	44.9

SOURCE: Survey of Nurse Graduates

NOTE: Two-by-two tables were used to determine evidence for a statistical association with nurse graduates' employment sites. A chi-squared test was used to determine the level of statistical significance

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support

MUC = medically underserved community; PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

Other attitudes were not nearly as strongly associated with current employment in underserved areas. Although the difference between those with and without the attitude is small in magnitude, the following are associated with current employment in a medically underserved community with statistical significance: degree of autonomy in the position, professionally rewarding position, attractive working hours, and adequate salary. Whereas those who report the importance of personal autonomy or professional rewards have relatively higher rates of current employment in a medically underserved community, those who report the importance of attractive working hours or adequate salaries have relatively lower rates of current employment in a medically underserved community. There is no statistically significant association between current employment in a medically underserved community and those attitudes dealing

with perceptions of amenities in the area of a potential employment site: size of the community, appropriate housing in the area, family originated in the area, attractive leisure activities, adequate schools, adequate child care, and employment opportunities for the spouse or partner.

There were few differences by the SGFP status of nurse graduates' schools. The relationship between current employment in a medically underserved community and reporting the importance of (1) autonomy, and (2) professional rewards was not statistically significant among non-SGFP institutions. Among the same group of nurse graduates, there is a statistical significant association between current employment in a medically underserved community and reporting the importance of attractive working hours.

7. PNT Support

The relationship between PNT support and current employment in a medically underserved community is complex. First, there is no indication that the 1997 cohort of PNT-supported nurse graduates differs from the 1998 cohort in rates of current employment in a medically underserved community (Table IV.9). Nor are nurse graduates who received PNT support in the 1996-1997 school year different from those who received the PNT support in the 1997-1998 school year. This shows that grouping nurse graduates from different school years is unlikely to hide relationships by year of graduation. Second, the number of years in the PNT-supported program, receipt of PNT funds notwithstanding, goes far to explain the variation in current employment in a medically underserved area. The more years nurse graduates spend in a program, the lower the proportion reporting current employment in a medically underserved community. This result could be an artifact of the strong negative association between receiving a doctoral degree and current employment in a medically underserved community, since nurse graduates who received doctoral degrees are more likely to have spent several years in graduate school.[7].

Third, there is a positive, but complex, association between PNT support and current employment in a medically underserved community. On the one hand, there is no association between current employment in a medically underserved community and: the number of years received PNT support, annual tuition and fees, or the estimated percent of graduate education financed by the PNT program (estimated as the ratio of a nurse graduate's PNT support to tuition and fees in the last year of receiving PNT support). On the other hand, nurse graduates have significantly higher rates of current employment in a medically underserved community, the higher (1) the number of months they received PNT support *in the last year of PNT funding*, and (2) the total amount of PNT support reported *in the last year of PNT funding*. This finding suggests that there is a positive and statistically significant relationship between PNT funding and employment in a medically underserved community, but the relationship holds only when nurse graduates have received funding for a sufficiently long time and at a high enough level that it is salient and memorable to them.

TABLE IV.9 RELATIONSHIP BETWEEN PNT SUPPORT AND EMPLOYMENT SITES BY SGFP STATUS

	Percent Currently Employed in a MUC[a] Employment		
Nursing Education	**All Institutions**	**SGFP Institution**	**Non-SGFP Institution**
Year Graduated from PNT-Supported Graduate Program			
1997	37.0	36.3	42.3
1998	38.4	37.8	45.9
Last School Year in Which PNT Funding Was Received			
1996 - 1997	36.1	35.6	40.3
1997 - 1998	39.5	37.6	50.4**
Years in PNT-Supported Graduate Program			
One year	41.5#	42.2#	31.7

Two years	39.8	39.3	44.6
Three years	35.2	34.1	45.9
Four or more years	29.2	28.3	36.7
Number of Years Received PNT Support			
Up to one year	36.7	36.2	41.5
One to two years	38.6	38.1	43.6
Two to three years	44.6	42.2	66.7
Months of PNT-Support in Last Year Received PNT Funding			
Less than 6	34.2#	33.6#	39.6
6 to 9	38.4	37.7	45.1
Over 9	46.6	46.0	53.5
Annual Tuition and Fees			
Under $5,000	37.4	37.0	41.3
$5,001 to $10,000	38.3	37.3	48.9
$10,001 to $20,000	42.9	41.7	59.4
Over $20,000	31.4	29.2	51.7
Total PNT Support Received in Last Year Received PNT Support			
Under $1,000	33.2#	33.1	33.7#
$1,000 to $1,500	38.4	37.8	45.4
$1,500 to $2,000	38.2	38.4	36.1
Over $2,000	41.5	39.9	54.3
Estimated Percent of Graduate Education (Tuition and Fees) Financed by the PNT Program			
Under 25 percent	37.6	36.6	49.2
25 to 50 percent	37.7	36.8	49.7
51 to 75 percent	41.4	40.9	48.9
Over 75 percent	40.6	40.3	43.1
Total Number of Observations	**4,322**	**3,932**	**390**

SOURCE: Survey of Nurse Graduates.

NOTE: For categorical variables, logistic regression was used to determine evidence for a statistical association with nurse graduates' employment sites. Two-by-two tables were used to determine evidence for a statistical association with nurse graduates' employment sites. A chi-squared test was used to determine the level of statistical significance.

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support.

MUC = medically underserved community; PNT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

*Significantly different at the .10 level.
**Significantly different at the .05 level.
***Significantly different at the .01 level.

#All measures simultaneously explain variation in nurse graduates' employment sites at the 10 percent level of statistical significance.

This relationship is further complicated by differences by SGFP status of the school. Months of PNT support is not significantly associated with employment in medically underserved communities for non-SGFP institutions, and total PNT support in the last year a graduate received PNT support is not statistically significant for SGFP institutions—although the relationship holds for the opposite subsample and for all nurse graduates combined. That the relationship is complicated by the SGFP status of nurse graduates' schools is not surprising, given that schools have leeway over how they allocate PNT funds to eligible nurse graduates.

E. CONCLUSION

Our analysis of the employment sites of nurse graduates reveals the following:

- The statutory mandate for schools getting PNT to place at least 40 percent of graduates in medically underserved communities is being met, at least among nurse graduates included in this study: 45 percent worked in a medically underserved community at some time between graduation and the time of the survey.

- The SGFP distinction among institutions receiving PNT funds to support nurse graduates does not seem to improve placement rates. In fact, placement rates are lower for those graduating from schools with the funding preference, even though graduates from SGFP schools reported trying harder than those graduating from non-SGFP schools to get jobs in medically underserved communities.

- The primary reasons for wanting to work in a medically underserved community include the ability to serve needy patients, gratitude for PNT support, the degree of professional autonomy offered by such positions, and belief in the professional rewards of the job.
- Primary reasons for not taking a job in a medically underserved community include low pay, inflexible work schedules, and inadequate salaries.
- Main factors associated with taking a job in a medically underserved community were living in such communities before or during graduate training and having had a job in one of these communities before graduate training.

The length of time in the PNT-program supported and the amount of PNT support received in the last year of receiving PNT support were associated with higher rates of taking a job in a medically underserved community.

[1]There was little difference in rates of employment in medically underserved communities by the year of graduation. Among PNT-supported graduate nurses who graduated in the 1996-1997 school year, 37 percent were currently employed in a medically underserved community. The corresponding percentage for graduate nurses who graduated in the 1997-1998 school year was 38. The difference between these rates is not statistically significant, suggesting that the likelihood of employment in a medically underserved community does not differ between the two cohorts.

[2]For convenience, we report the proportion currently employed in a medically underserved community for each value of the binary variable.

[3]We also performed t-tests of differences in the coefficients estimated from the logistic regression to make comparisons across categories. For example, we used t-tests comparing estimated effects to determine whether the effect was stronger for one racial group compared to another. Results of these tests are discussed, but not shown in tables.

[4]Our ability to make judgments about the correlates of current employment in medically underserved communities is somewhat limited, however. Making accurate judgments about whether various measures have any independent effect on current employment in a medically underserved community actually requires multivariate analysis—which is beyond the scope of this study.

[5]This result holds true regardless of how we operationalize years of employed as an RN. For example, years of experience as an RN, a continuous variable, also does not significantly explain variation in current employment in a medically underserved community.

[6]Seventy-four percent of nurse graduates who had lived in a medically underserved community after age 18 reported living in a medically underserved community before age 18.

[7]It is also possible that nurse graduates who spent more years in a program require higher salaries to recoup the cost of graduate school. Given that nurse graduates seem to perceive lower salaries from employment located in a medically underserved community, it seems reasonable that nurse graduates who have spent many years in a graduate program would avoid employment in those communities.

V. CONCLUSIONS AND RECOMMENDATIONS

A. OVERALL FINDINGS

This study of the Professional Nurse Traineeship Program documented the characteristics of PNT-supported nurse graduates and their subsequent employment and assessed whether the program resulted in substantial placement of nurses in medically underserved communities. The study was based on a survey of all PNT recipients who graduated in two recent school years: 1996 to 1997 and 1997 to 1998. The survey took place between two and three years after the nurses graduated. The response rate was almost 75 percent.

- The study showed that the PNT program appears to be meeting the standard specified for the Government Performance Reporting Act—40 percent placement of nurse graduates in medically underserved communities. In fact, 45 percent of the graduates worked in a medically underserved community at the job at which they had spent the most time since graduating.

The PNT program provides differential funding levels according to whether schools have demonstrated that they make substantial placements in medically underserved communities (although the majority of schools—90 percent—actually receive the higher rate—known as the Statutory General Funding Preference).

- The study did not show that schools receiving the preference had higher placement rates of their graduates in underserved communities than did the other schools. In fact, the graduates of schools with the preference had lower placement rates.

We also reviewed whether there were different rates of employment in medically underserved communities for graduates with different personal backgrounds and different experiences in graduate school. We found some interesting associations between these nurse characteristics and experiences and the rate of subsequent employment in a medically underserved community, but few associations between nurse characteristics and the SGFP status of the school they attended.

B. ASSOCIATIONS BETWEEN CHARACTERISTICS AND SGFP STATUS AND EMPLOYMENT IN A MEDICALLY UNDERSERVED COMMUNITY

Very few nurse characteristics were differentially associated with SGFP school status. The policy relevance of most of these characteristics is minimal:

- SGFP and non-SGFP nurse graduates had similar sociodemographic characteristics.
- SGFP nurse graduates were significantly more likely to graduate as nurse midwives and less likely to graduate as nurse anesthetists than non-SGFP nurse graduates. Similarly, they were less likely to have a Bachelor's degree in nursing and more likely to have a Bachelor's degree in another subject. However, for both types of schools the predominant degree at the end of the graduate course of study was a Master's degree (94 percent) and 75 percent of the nurses graduated as nurse practitioners.
- SGFP nurse graduates were significantly (but only slightly) less likely to have worked in a medically underserved community before their graduate course than non-SGFP nurse graduates, but the rate at which they have lived in medically underserved communities before going into the PNT-supported program is similar to that of non-SGFP graduates.
- Both types of nurse graduates have about 14 years' experience as RNs before going to the graduate program.
- Both types of nurse graduates received approximately 1,800 in PNT support in their last year.
- Both types of nurse graduates received the same types and rates of encouragement and support for working in medically underserved communities (for example, rotations and preceptorships in medically underserved communities [70 percent SGFP and 68 percent non-SGFP]. Only about 6 percent of nurse graduates from either type of school reported that they were asked to sign a statement of commitment to work in a medically underserved community.

It is perhaps not surprising that we find so few meaningful differences by SGFP, given that the funding preference was only an additional $8,800 per year for an SGFP school.

At the time of the survey, between two and three years after graduation, 38 percent of nurses were working in a medically underserved community. Nurses with the following characteristics were more likely to be working in a medically underserved community at that time:

- Nurse graduates who had lived or worked in a medically underserved community
- Nurse anesthetists and nurse midwives
- Ethnic minorities such as Hispanic, Black or African American, and American Indian or Alaskan Native
- Nurses who indicated that factors associated with their choice of practice location included being grateful for the PNT support and wanting to serve needy people
- Nurses from non-SGFP schools
- Nurses from schools that had required them to sign a statement of commitment to work in medically underserved community in exchange for student financial aid
- Nurses who had experienced rotations or preceptorships in medically underserved communities

Before discussing the policy relevance of these findings and making recommendations, we review the limitations of this study, which suggest wariness in the interpretation of the findings.

C. STUDY LIMITATIONS

This study design limits our ability to draw strong policy implications from some of the findings or to make strong recommendations to HRSA about the future of the PNT program. First of all, we cannot treat as causal the associations between personal, school, and educational characteristics and subsequent employment in medically underserved communities. For example, the finding that SGFP schools do not have a higher rate of employment in medically underserved communities does not mean conclusively that the preference has had no effect on the placement rate—it might be worse without the PNT funding. Many of the characteristics associated with placement in a medically underserved community occur either at the same rate or at a lower rate among nurse graduates from SGFP schools. Thus the SGFP variable may be measuring these other characteristics—not SGFP per se. Had we adjusted for these characteristics in a multivariate model, we may have found a positive association between graduation from an SGFP institution and current employment in a medically underserved area.

Second, the PNT program is one of several financial support programs for graduate nurses (HRSA 1997). We are looking at only the PNT support program, however; if there is a correlation between the PNT and other programs in the distribution of funds, the results reported here might reflect the joint effects of all the programs, rather than the PNT effect.

Third, the process we used to assign nurse graduates to the status of employed in medically underserved communities is not perfect. It is likely that we have underestimated, rather than overestimated, employment in underserved communities. First, because ZIP codes can cross county boundaries, we had to decide how to handle multicounty ZIP codes. We used a software package that assigns each ZIP code to only one county. Thus, each ZIP code for a nurse's place of employment was linked to only one county—the primary county in which the ZIP code was located, which means that we are not perfectly sure that the position was in that county, even though it is highly probable. Furthermore, we did not assume that a place of employment located in a ZIP code that was part of a partial county HPSA or MUA was, in fact, in a medically underserved community (the ZIP code might or might not have been in the part that was underserved).

D. POLICY IMPLICATIONS AND RECOMMENDATIONS

Based on the findings in this report we make five policy recommendations. The schools provided signed statements of appointment forms for nurses who had received PNT support, for those who graduated in the two years targeted by the study. Nevertheless, some nurses reported that they did not receive PNT support (3 percent of the respondents). From this finding, we conclude that either the schools keep incomplete records on who they actually distribute PNT funds to, or else they provide insufficient information to some nurses about the type and purpose of the financial support they receive. Based on this finding, **we recommend (1) that schools improve their record keeping and that they provide more information to the graduate nurses who received the PNT support. Any future studies of the PNT program would need such records.**

The PNT program appears to be doing what it is intended to do: bring advanced practice nurses to work in medically underserved communities. The GPRA performance standard of 40 percent of PNT recipients working in a medically underserved community is being met—at least with respect to the place of employment at which the nurses spent the most time since graduation. Moreover, most nurses tend to stay at least for a couple of years in those positions. However, since any performance standard should be reviewed with quality improvement in mind, **we recommend (2) that HRSA consider increasing the GPRA performance standard over time.** We believe that a higher standard could be achieved because large numbers of PNT recipients do not work in medically underserved communities after graduation. We also recommend ways in which schools could modify their recruitment and communication with their students so that they may increase their medically underserved community placement rate.

PNT support is a substantial part of tuition and fees for many graduate students, and hence is potentially an important lever for bringing about subsequent practice in a medically underserved community. First, the mean PNT support in the last year they received it was $1,843; this was about 42 percent of the tuition and fees the nurses faced that year. Second, confirming its actual importance as a factor in practice in medically underserved communities, we found that among nurse graduates who subsequently worked in medically underserved communities, 40 percent said that gratitude for the PNT support played a part in their choice of this practice setting. However, schools may not be making clear enough to their graduate students the mission of serving these communities. Only 6 percent of nurse graduates reported being required to sign a statement of commitment to work in such communities in exchange for financial support. **Thus, we recommend (3) that schools discuss openly with their recruits to graduate school, and the students selected to receive PNT support, the purpose of these PNT funds, and the overall mission, in order that they engage nurses in thinking about practice in an underserved community.**

PNT-receiving schools make a fairly active commitment to exposing their graduate nurses to employment in medically underserved communities during training, but if they could do more, their placement rate might improve. Although we found no difference between nurse graduates from SGFP and non-SGFP schools in the types of exposure and encouragement that they received, we did find that nurse graduates who had these exposures were much more likely to practice in medically underserved communities than those who were not. Hence, **we recommend (4) that schools increase the rate at which they arrange rotations and preceptorships for their students in medically underserved communities in association with spending more time discussing the PNT program mission of serving the underserved.**

The statutory general funding preference appears not to target the schools with the highest placement rates in medically underserved communities (it may, however, be targeting the schools with the largest recent improvements [a program goal we could not evaluate]). The placement rate of schools receiving the statutory general funding preference is no better than for other schools (it is slightly worse). However, placement rates were higher for nurse graduates who had an earlier connection to medically underserved communities, but the graduates of SGFP schools were no more likely to have such connections than the graduates of non-SGFP schools. Earlier residence or employment in a medically underserved community was correlated with increased placement rates in these communities after graduation. Some minority nurse graduates (African American, Native American, and other small groups, but not Asians) were also more likely to work in medically underserved communities. (However, it is quite likely that race and place of residence are highly correlated—for example, Native American nurses are more likely to come from a reservation which itself is likely to be in a medically underserved community.) Hence, **we recommend (5) that, to improve placement rates in medically underserved communities, the schools should recruit and target for PNT support more students who have lived or recently worked in medically underserved communities.**

It should not be overlooked, however, that the majority of nurses practicing in medically underserved areas have had no prior connection to medically underserved communities. Thus, we can expect the schools to continue to place more of these students in medically underserved communities than any other types of students. This suggests that the exposure of students to the mission and the reality of serving these populations during their graduate training is a critical one, emphasizing our second and third recommendations.

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APPENDIX A SURVEY AND WEIGHTING METHODOLOGY

A. SAMPLE FRAME

The sample frame for this study consisted of 1997 and 1998 nurse graduates receiving support from Professional Nurse Traineeship (PNT) grants. The survey sample was developed using Statement of Appointment (SOA) forms completed by students or on behalf of students at schools receiving PNT grants. HRSA provided the forms. MPR data entered the completed forms and produced a data file. This data file was returned to HRSA so that incorrect or duplicate names could be removed and information on the graduation dates, social security numbers, addresses, age, and gender could be updated. The resulting database (completed during 1999) was used as the sample frame
In the month before fielding (that is, June 2000), the sample was sent to Lorton Data for National Change of Address processing. National Change of Address processing compares the input address to the permanent change of address database of the U.S. Postal Service. The permanent change of address information is kept on the NCOA database for three years. When the input data is run against the NCOA database and a match is found, the new address information is appended to the original input file. All original data that was on the input file is maintained.
Lorton Data also performed telephone append matching. Telephone append matching included verifying the existing telephone numbers on the input file and reverse matching where matching telephone numbers produced updated name and address information.
survey development and content
We designed the survey for an average administration time of 12 to 15 minutes. Because the study was designed for a mixed-mode administration with the majority of responses expected from the mail mode, the questionnaire was developed for ease of completion. The questionnaire was divided into four sections covering: (1) graduate educational training and experiences, (2) employment in nursing following graduation, (3) education prior to graduate training, and (4) demographic information.

The instrument was pretested between July 27 and August 6, 1999, with nine respondents who were identified by the Division of Nursing. The pretest had the following objectives: (1) determine respondent burden, (2) identify questions or response categories requiring revisions, and (3) determine the effectiveness of the advance letter, cover letter, and the reminder post card

Pretest subjects were contacted by telephone. The study was described and their participation was solicited. Those who agreed to participate were sent a package of materials consisting of the advance and cover letters, the reminder post card, and the survey instrument. Participants in the pretest performed the following activities:

- Read the advance and cover letters and reminder post card
- Completed the interview and recorded how long it took to complete it
- Marked any questions or response categories they did not understand

- Made a copy of the completed questionnaire for their records
- Returned the original completed questionnaire in the envelope provided
- Underwent telephone debriefing by MPR staff, on their comments about the materials

C. SURVEY PROCEDURES

The survey procedures were developed in an attempt to achieve a 75 percent response rate. The survey was fielded during a seven-month period between August 2000 and February 2001. An advance letter was sent to sample members notifying them that they would be receiving the questionnaire in the mail. This letter, on letterhead from the U.S. Department of Health and Human Services, Bureau of Health Professions Division of Nursing letterhead, was sent out to the 5,184 nurses in the sample frame on July 7, 2000.

The Post Office returned 291 letters to MPR with address corrections. The updated information was entered into the tracking system and used to mail replacement materials. This ongoing process was throughout the field period.

The questionnaire was first mailed on August 3, 2000. In addition to the questionnaire, the mailing included a cover letter from the Division of Nursing that referred to the advance letter and explained the importance of the sample member's response.

Two weeks later, a post card was mailed to all sample members that they had been asked to participate in the study and informing them that many of their colleagues had already completed and returned their questionnaires. The postcard also provided a toll-free contact number at MPR for sample members who had not received questionnaire.

On September 22, 2000, MPR sent a priority mailing of the survey materials to the roughly 2,500 sample members who had not yet responded to the initial mailing. The priority mailing included a cover letter on Division of Nursing letterhead asking the sample member to participate in the study and another copy of the questionnaire.

Mailings that were undeliverable and returned by the post office were given to MPR's locating department to search for updated information on these sample members.

The locating department used the Lexis/Nexis database to search for current addresses. The department also used Lexis/Nexis to find telephone numbers for nonrespondents with missing numbers.

Fifteen telephone interviewers and supervisors were trained on October 1, 2000, to conduct telephone followup. The study-specific training covered the study background, descriptions of medically underserved areas and Health Professional Shortage Areas, definition of the Professional Nurse Traineeship (PNT) Program, and the purpose of the study. Central to the training was a question-by-question review of the instrument and a discussion of questions sample members were expected to have and appropriate interviewer responses.

Telephone followup began on October 2, 2000, and continued through February 28, 2001. During telephone followup, we made three attempts to contact sample members who did not respond by mail. (Telephone contact attempts included any call made to the household, including no answers and busy signals.) In an effort to increase the response rate, approximately 220 sample members were targeted for four additional follow-up calls. Targeting criteria included whether we had spoken to the respondent or to someone in the household and could verify that the respondent lived there. We also sent nonrespondents a second postcard reiterating the importance of the study and asking them to contact MPR or to complete and return their questionnaires.

An additional shipment of materials to 352 non-respondents was prepared to help increase the response rate. The selection criteria included whether we had ever spoken to someone in the household or whether an answering machine recording provided information identifying the respondent as a possible resident at that number the name on the answering machine greeting was the same as the sample member's). The package included:

- The cover letter on HRSA letterhead with Dr. Denise Geolot's signature (Dr. Geolot is the Acting Director of the Bureau of Health Professions.)
- The mail version of the PNT Study questionnaire
- An insert describing the importance of their response to the study
- A return envelope.

MPR shipped the materials via Federal Express between Wednesday, January 31, 2001, and Thursday, February 1, 2001. Completed questionnaires were accepted through the month of February. Telephone interviews continued to be completed with sample members who called the toll-free telephone number until February 28, 2001.

D. SURVEY PROCESSING

Returned materials were tracked using a Microsoft Access database. A receipt control clerk monitored the status of each sample member. While the study was in the field, we were able to track the status of the following:

- The number of cases that were returned unlocatable and sent to the MPR locating department.
- The number of survey instruments that were returned by the nurse graduates
- The number of completed instruments that were in data entry
- The number of cases that refused via mail
- The number of cases that refused via telephone
- The number of cases in telephone followup
- The number of cases that were final refusals
- The number of documents that had completed all phases of processing

The database also allowed us to track the number of sample members who were deceased, who did not graduate in 1997 or 1998, and who reported that they did not receive PNT funds. (All these sample members were ineligible.) The mode of administration was data entered with the survey responses but was not tracked in the Access database.

Documents that were returned by nurse graduates were reviewed by the receipt control clerk and logged into the tracking system. Those that were complete were forwarded to the data entry department.

E. SURVEY RESPONSE

Table A.1 summarizes the outcomes of the data collection operation.

TABLE A.1 SUMMARY OF SURVEY OUTCOMES

Subgroup	Status	Number of Cases	Percent of Subgroup	Percent of Study Group
Mail Completes	Eligible	2,855	86.4	55.1
	Ineligible	451	13.6	8.7
	All	3,306	100.0	63.8
Telephone Completes	Eligible	364	78.1	7.0
	Ineligible	102	21.9	2.0
	All	466	100.0	9.0
All Completes	Eligible	3,219	85.3	62.1
	Ineligible	553	14.7	10.7
	All	3,772	100.0	72.8

Telephone Nonrespondents	All	1,412		27.2
	Located Nonresponse	620	43.9	12.0
	Unlocated	792	56.1	15.3
Total Telephone Attempted		1,878		36.2
Total Study Population		**5,184**		**100.0**

As the Table indicates, the mail survey operation was highly successful at eliciting a response; 3,306 (63.8 percent) of the study population responded by mail. Of the remaining cases (1,878) for which a telephone interview was attempted, 24.8 percent (466) completed the survey. Slightly more than half (56.1 percent) the nonresponse was due our inability to obtain a telephone number for the nurse.

From Table A.1, we estimate that 4,322 (83.4 percent) of the 5,184 population study members were eligible.[1] This estimate includes an estimate of the number of ineligible nonrespondent and is based on a weighted eligibility rate that takes into account the differing eligibility rates for the mail and telephone cases. Specifically, we obtained an eligibility rate of 86.4 percent among the mail completes, which represent 63.8 percent of the study population, and an estimated eligibility rate of 78.1 percent among telephone-attempted cases, which represent the remaining 36.2 percent of the study population. Taking into account the rates for each group and the proportion of the population they represent we obtained an estimate of 83.4 percent eligibility (that is, 0.864 times 0.638 plus 0.781 times 0.362, (.551 + .283) equals .834 or 83.4 percent). From the estimated eligible population, we obtained a total of 3,219 (2,855 + 364 mail) eligible completed interviews, yielding a survey **response rate of 74.5 percent** (3,219/4,322 = .7447).

A. COMPLETION RATES, BY GRADUATE CHARACTERISTICS

Table A.2 presents the completion rates for various demographic groups (limited to the information available from the Statement of Appointment Forms).

TABLE A.2 SURVEY COMPLETION RATES, BY DEMOGRAPHIC AND SITUATIONAL FACTORS (CATEGORIES ORDERED FROM LOW TO HIGH ON THE COMPLETION RATES FOR EACH CHARACTERISTIC)

Characteristic	Study Population	Total Completes	Percent Complete[a]	
Respondent Age				
23-24	22	12	54.5	
25-29	670	442	66.0	
30-34	854	573	67.1	
35-39	873	609	69.8	
Missing	653	484	74.1	
50+	406	312	76.8	
40-44	1,016	797	78.4	
45-49	690	543	78.7	
Respondent Ethnicity				
American Indian	20	12	60.0	
Hispanic	115	76	66.1	

Black	202	135	66.8	
Asian	101	69	68.3	
Missing	1,938	1,369	70.6	
White	2,808	2,111	75.2	
Respondent Gender				
Male	372	247	66.4	
Female	4,344	3,179	73.2	
Missing	468	346	73.9	
Respondent Gradation Year				
97	2639	1899	72.0	
98	2,545	1,873	73.6	
Respondent School Funding Preference Status				
1997/1998	222	154	69.4	
Both years	4,154	3,006	72.4	
Neither year	469	355	75.7	
1996/1997	339	257	75.8	
Total PNT Dollars Received by Respondent				
4,000-4,999	140	99	70.7	
1,000-1,999	1,049	749	71.4	
Unknown	2,192	1,583	72.2	
100-999	617	453	73.4	
2,000-2,999	470	347	73.8	
3,000-3,999	359	270	75.2	
5,000+	357	271	75.9	
Census Division Where Respondents Was Located[b]				
Unknown	162	91	56.2	
West South Central	356	241	67.7	
East South Central	378	259	68.5	
Pacific	860	620	72.1	
Middle Atlantic	766	555	72.5	
Mountain	323	236	73.1	
South Atlantic	946	692	73.2	
New England	442	326	73.8	
East North Central	655	509	77.7	
West North Central	296	240	81.1	58.0
South	1,680	1,192	71.0	
West	1,183	856	72.4	
Northeast	1,208	881	72.9	

Midwest	951	749	78.8	
Urban or Rural Status of Respondents[b,c]				
No zip	152	110	72.4	
Urban	4,192	3,019	72.0	
Rural	840	643	76.5	
Total		**5,184**	**3,772**	**72.8**

SOURCE: Statement of Appointment forms.

[a]Completed interviews (eligible and ineligible) divided by the number in the study population.

[b]Note that these location measures are from Statement of Appointment forms and not location at the time of the survey.

[c]Based on the membership of the graduate's zip code in a Metropolitan Statistical Area (MSA). If the zip code was in an MSA, the case was coded as urban.

From the review of Table A.2, the primary factors that seemed to be related to nonresponse are age, ethnicity, and geographic location. In general, the results show that younger respondents tended to be less willing to complete the survey, as were non-whites and graduates from the South (the West and East South Central divisions). The level of funding the graduate received appears to have had only a minor influence on response status, as did graduation year and the status of the school's general funding preference over the two periods. Males tended to respond at a lower rate than the females, but the number of men in the survey is fairly small.

We also conducted three-way cross-tabulations to determine whether these trends were consistent across cases by category membership on other characteristics (for example, comparing the completion rates by age across different ethnicity groups). These results showed no apparent interactions, implying that the trends were in fact pretty much consistent patterns.[2]

F. WEIGHTING PROCEDURES

1. Overview

The study design consisted of a census of 5,184 nurse graduates who received PNT grants in the 1996-1997 or the 1997-1998 school year. Thus, survey weights were not needed to account for a sampling process in this study. However, given that some study members did not respond to the survey, and given that respondents may have differed from nonrespondents on dimensions that are related to the survey analysis, some nonresponse adjustments were both warranted and reasonable. We prepared a set of survey weights, to eliminate to the extent possible, any bias in the results due to nonresponse. The weights provide for unbiased estimation of the study population from the completed interview data by accounting for any observable differences between the respondents and nonrespondents.

We prepared the weights using a weight raking procedure (described in the next section) so that the weighted distribution of completed interviews mimicked that of the study population on various dimensions, this process also weighted the completed interview data so that weighted survey totals matched in magnitude those that would be obtained from the study population.

2. Preparing the Survey Weights

To prepare the survey weights, we used a weight raking procedure to weight the completed interviews (eligible and ineligible combined) so that

the weighted results would match the profile of the study population on a variety of characteristics. In particular, we wanted the weighted completed interview survey data to match in distribution that of the study population on the characteristics identified in Section E as being related to nonresponse. To minimize bias due to nonresponse, we included as many characteristics in the adjustments as seemed feasible without creating an overly large range in the final weights.

The raking procedures aligns the sum of the weights (here, a starting weight with a value of 1 for all cases) to reproduce the population totals for a set of specified domains. The domain constraints that we used in the raking process are shown here in the list. We also imposed the constraint that the weighted total sum of grant dollars received would match that in the study population ($8,324,050).

1. General funding preference categories (four categories: 1997/1998, 1996/1997, both years, neither)

2. Graduation year (two categories: 1997, 1998)

3. Gender (three categories: male, female, unknown)

4. Age (seven categories: 23-29, 30-34, 35-39, unknown, 40-44, 45-49, and 50 or older)

5. Ethnicity (two categories: white, all others, given the level of missing data on this characteristic we decided not to impose a more granular set of constraints)

6. Region (four categories, unknown combined with the South, West, Midwest, and Northeast)

7. Rural residence status (three categories: rural, urban, unknown)

8. Ethnicity by region (eight categories as defined by combination of white, all other, and four regions) to account for any interaction based on these two characteristics

9. Eligibility status (with the assumption that 4,322 were eligible based on the survey results as discussed in Section E; two categories: eligible, ineligible)

The weight raking approach is based on a least-squares methodology (see Deville and Carl-Erik Sarndal, 1992 and 1993) that finds a set of new weights meeting the specified constraints while minimizing the squared difference between the new weight and the pre-raked weight (in this case, all the completed interviews received a starting weight of 1.00). It is this aspect that separates the methodology from a standard iterative-proportional-fitting raking technique, which does not impose a check on the changes in the weights required to meet the specified domain constraints. The constraints are specified in terms of the desired weighted counts for a set of categories (as listed above) or in terms of the desired weighted total for a continuous outcome variable (for example, grant dollars received) either overall for a given category.

The final weights that the procedure generated reproduced the study population totals for all the categories defined in the preceding list above (and the weighted sum of grant dollars received). The weights have a range for all of the 3,772 completed eligible and ineligible interviews from 1.046 to 1.980, with a coefficient of variation (CV) of .109 (10.9 percent).[3] Hence, none of the adjustments exceed a value of 2.00, which is considered a preferable maximum adjustment in many government surveys. For the 3,219 completed eligible surveys, the weights sum to the desired estimated current eligible population of 4,322, with a range in the weights from 1.046 to 1.73 having a CV of .0964 (9.6 percent). Note that the report includes only the weighted responses of the eligible respondents.

[1]Reasons for ineligibility include not graduating in the target school years, dead, and reporting that they did not receive PNT support

[2]We limited our focus to potential interactions among age and ethnicity, age and region, and region and ethnicity, as these characteristics showed the greatest variation in completion rates. As a guide to measuring the presence of a interaction, we conducted a Breslow-Day Test on the tables (Breslow and Day 1980). This test for the equivalence of the odds ratio in a 2 x 2 table (for example, two age categories by completion status) across *k* subdomains (for example, 4 regions). For these comparisons, we divided age and into two categories (under age 40 and age 40 and over, including unknown), and ethnicity into two categories white and nonwhite). We then examined whether 1) the white/nonwhite trend was consistent across the two age categories, 2) the young/older effect was consistent by the two age categories, and (3) the white/nonwhite effect was consistent by region. None of these comparisons resulted in a significant test statistic (bear in mind this is a

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census, which does not have any sampling error). The region-by-ethnicity comparison showed the highest level of a potential interaction, with a test statistic p-value of 0.42; with the other tests yielding *p*-values higher than 70.

[3]In a survey in which sampling is conducted, the CV in the weights provides an estimate of the design effect associated with the unequal survey weights. The design effect represents the relative increase or decrease in the sampling precision in the estimates that is associated with the proposed design compared with what would be obtained using a simple random sampling methodology with equal-sized survey weights. For comparative purposes only, the design effect based on a CV of 10.9 percent in the weights would be equal to 1.012, which would yield an effective sample size of 3,727 eligible and ineligible completes (rather than 3,772 eligible and ineligible completes) if the completes were treated as a sample. Hence, the variation in the weights that results from the nonresponse adjustment process is relatively minor.

APPENDIX B.1
SOCIODEMOGRAPHIC CHARACTERISTICS OF PNT-SUPPORTED NURSE GRADUATES, BY SGFP STATUS AND GRADUATION YEAR

	1996-1997 Graduates		1997 - 1998 Graduates	
Sociodemographic Characteristic	**SGFP Institutions[a]**	**Non-SGFP Institutions**	**SGFP Institutions**	**Non-SGFP Institution**
Age at Survey Interview (Percent)				
Mean age	41.204	40.240	40.098	40.844
20 to 30	9.39	10.22	12.69	14.80
31 to 40	36.09	42.88*	36.14	30.55
41 to 50	39.62	34.05	39.06	36.17
51 or older	12.59	11.20	8.67	16.79***
Unknown	2.31	1.65	3.36	1.69
Sex (Percent)				
Female	90.90	93.45	89.30	91.70
Male	7.01	4.89	7.60	6.61
Unknown	2.09	1.65	3.10	1.89
Race (Percent)				
American Indian or Alaskan Native only	0.56	0.00	0.32	0.00
Asian only	2.18	0.00**	2.81	1.72
Black or African American only	5.17	6.09	4.56	5.78
Native Hawaiian or other Pacific Islander only	0.45	0.00	0.23	0.00
White only	85.70	84.57	83.76	89.24
Some other race only	1.72	3.35**	1.86	0.82*
Two or more races	1.41	3.79**	2.53	0.00*
Unknown	2.81	2.20	3.93	2.44
Ethnicity (Percent)				
Hispanic or Latino	3.96	3.86	46.6	1.48
Not Hispanic or Latino	93.37	93.39	92.11	96.83
Unknown	2.67	2.75	3.23	1.69
Marital Status (Percent)				
Married	64.89	60.59	63.03	57.24
Living with partner	6.53	6.58	6.91	5.87
Widowed	0.34	0.00	0.43	1.49
Divorced	7.72	7.64	8.82	10.40
Separated	1.45	1.11	1.22	0.81

Single	16.42	22.44*	15.95	21.67
Unknown	2.65	1.65	3.64	2.52
Spouse or Partner's Job Influenced Choice of Current Job (Percent)	10.36	38.23	39.78	37.35
Has School-Aged Children	43.29	39.30	42.21	38.23
Unknown	2.92	5.01	3.31	2.21
Has Children Younger than 7 Years (Percent)	21.44	22.15	23.36	20.08
Unknown	3.26	5.01	3.31	2.21
Weighted Maximum Number of Respondents	1,932	227	2,000	163

SOURCE: Survey of Nurse Graduates.

NOTE: Statistical tests include *t*-tests of comparisons of means or proportions. The statistical tests are performed across each of the two comparison groups, SGFP status and SGFP status for each graduation year).

[a]We assume that a student received PNT support in an SGFP institution if the institution had the funding preference in at least one year during which the student received PNT support. We obtain funding preference of the student's institution based on information provided by HRSA.

NT = professional nurse traineeship; SGFP = Statutory General Funding Preference.

*Significantly different from zero at the .10 level.

**Significantly different from zero at the .05 level.

***Significantly different from zero at the .01 level

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